SUFFOLK
VIRGINIA
INDUSTRIAL OPPORTUNITY

BY
ENGINEERING EXTENSION DIVISION
VIRGINIA POLYTECHNIC INSTITUTE
BLACKSBURG, VIRGINIA

INDUSTRIAL SURVEY SUFFOLK, VIRGINIA

BY

R. L. HUMBERT, A.M., *Director of Surveys*

IN COLLABORATION WITH

R. B. H. BEGG, C.E., *Professor of Civil Engineering*
T. W. KNOTE, M.R.S., *Professor of Business Administration*
P. H. MCGAUHEY, B.S., *Instructor in Civil Engineering*
S. W. GAY, B.S., *Instructor in Business Administration*
J. W. WHITTEMORE, CER.E., *Professor of Ceramic Engineering*

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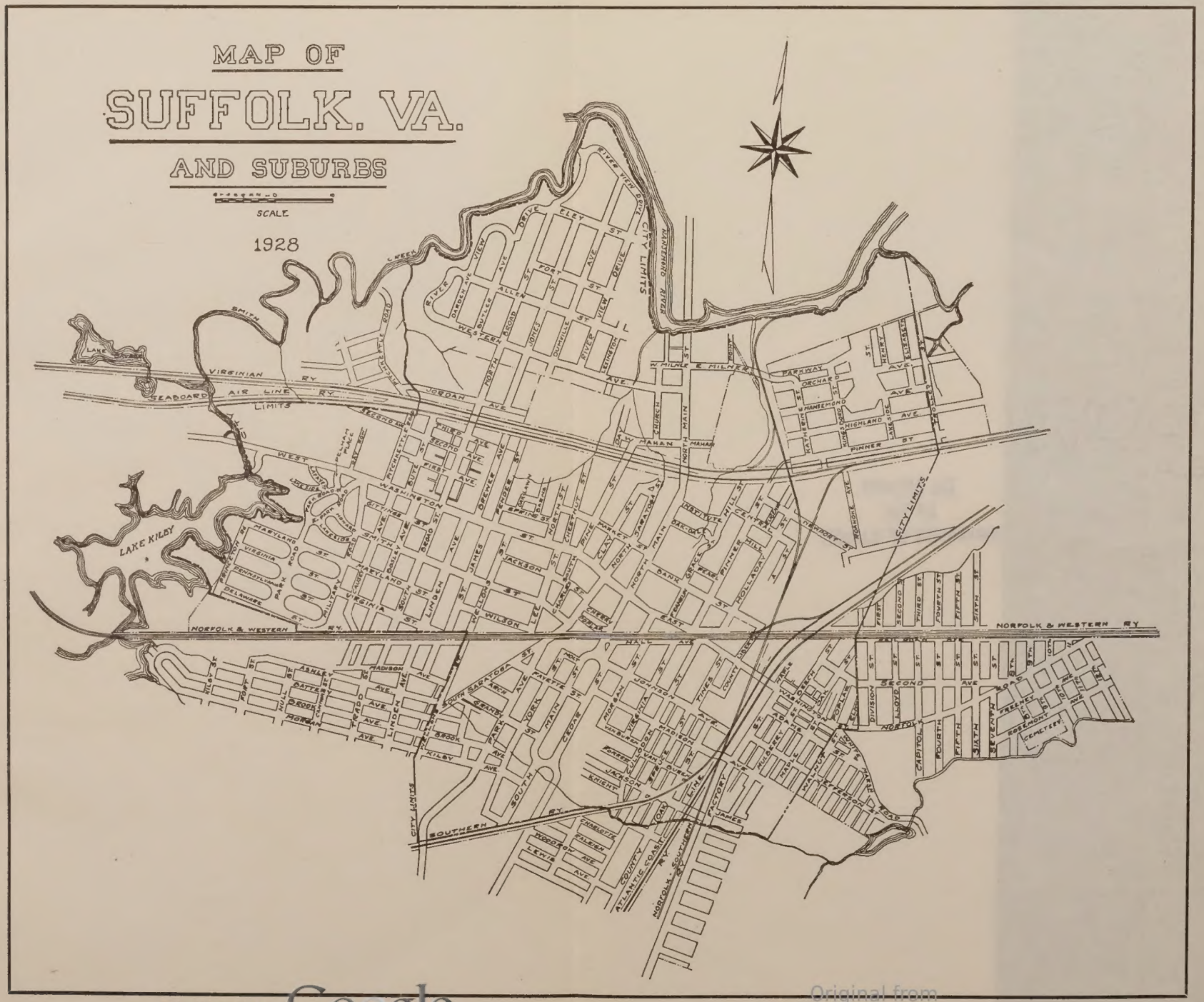

PREFACE

A study of the general industrial situation in Virginia by William D. Ennis, Technical Advisory Corporation of New York, reveals a sub-normal production of manufactured goods in proportion to needs. According to this authority, Virginia's manufactured goods amount to $255 per capita annually. The average per capita production for the United States, including both urban and rural areas, is $595. The State of Connecticut produces $920 and New Jersey has more than four times the Virginia figure, $1,120.

Virginia is now showing amazing growth. In 1925 the manufactured product was valued at 590 millions of dollars and it is estimated to reach one billion dollars by 1930. When one considers that it required ten years for the United States to double her factory production, it is encouraging to observe that Virginia is growing industrially, twice as rapidly as the whole country.

Mr. Ennis says, "If Virginia were producing manufactured goods even on the average United States basis, including in the average such non-industrial states as Arizona and New Mexico, its factory output today would be about one and one-half billion dollars per year. If Virginia were worked on the Connecticut basis, it would turn out two and one-half billion dollars, if on the New Jersey basis, nearly three billion dollars."

There is a distinct industrial renaissance in Virginia today. Cities, towns, and even rural districts have directed their attention toward industrial development. An industrial reconnoissance, such as this, is evidence of the new interest. It indicates a desire to have development along proper lines and only after a thorough study of those considerations which govern the successful and efficient operation of industry.

The Virginia Polytechnic Institute, through its Engineering Extension Division, is assisting communities throughout the state by studying local conditions and assembling manufacturing data to be used in industrial promotion work. This survey was conducted and the bulletin prepared by R. L. Humbert, Director of Surveys, in collaboration with R. B. H. Begg, and P. H. McGauhey, civil engi-

neers, T. W. Knote and S. W. Gay, of the department of business administration, and J. W. Whittemore, ceramic engineer.

Without the assistance and active cooperation of the Committee on Industry of the Chamber of Commerce and the Secretary of the local organization our task would have been much more difficult. We are, therefore, pleased to acknowledge the kindly interest and helpful suggestions of the committee composed of Col. E. E. Holland, chairman, M. A. Cross, G. A. Harris, A. Obici, and J. E. West. The untiring efforts and constructive criticisms of T. Cover Johnson, Secretary of the Chamber of Commerce, are gratefully recognized. The interest of the public officials and business men generally and their willingness to contribute information, in many instances confidential data, has made this study possible. The community is to be congratulated upon the liberal and progressive attitude of its officials and business men.

Inquiries regarding Suffolk should be addressed to T. Cover Johnson, Secretary, Chamber of Commerce, Suffolk, Virginia.

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INDUSTRIAL SURVEY OF SUFFOLK, VIRGINIA

GENERAL INFORMATION

Origin.—The legislature of colonial Virginia passed an act to establish a town at Constance's Warehouse on the Nansemond River, "to be called Suffolk," in May, 1742. It was not until January, 1808, that the town was formally incorporated by the General Assembly. Suffolk was known as Constance's Warehouse for a number of years before 1742. A number of public warehouses had been constructed and the location became an important trading center. Being located upon the Nansemond River a deep water channel to the sea was available. The town of Suffolk early became a live trading center situated near the head of the Nansemond River and the great Dismal Swamp of Virginia.

Nansemond County.—Captain John Smith first visited Nansemond County in 1608 and found it inhabited by a powerful tribe of Indians called Nansemonds. They were of the confederacy of Powhatan. The Chesapeakes, Nottoways, Iroquois, Meherrines, and Chowanockes were of the same confederacy and lived near the Nansemonds. Indian trails led from one tribe to another and provided the only means of communication in addition to the rivers and streams. The early white settlers gradually pushed the Indian tribes from their native soil and the land became inhabited by the English. A trace of Indian blood is found here today on account of the settlement of the Nottoways and Meherrines on the edge of the Dismal Swamp where they adopted the language and customs of the white man. The descendants of these Indians still reside on the ground occupied by their forefathers.

In 1608 Captain John Martin went with 120 colonists from Jamestown to the banks of the Nansemond River. A plantation was founded, but was soon broken up and only a few of the survivors found their way back to Jamestown. Sir Thomas Dale explored the Nansemond River in 1612, but it was not until 1618 that a successful settlement was made by Edward Waters. The early settlement suffered

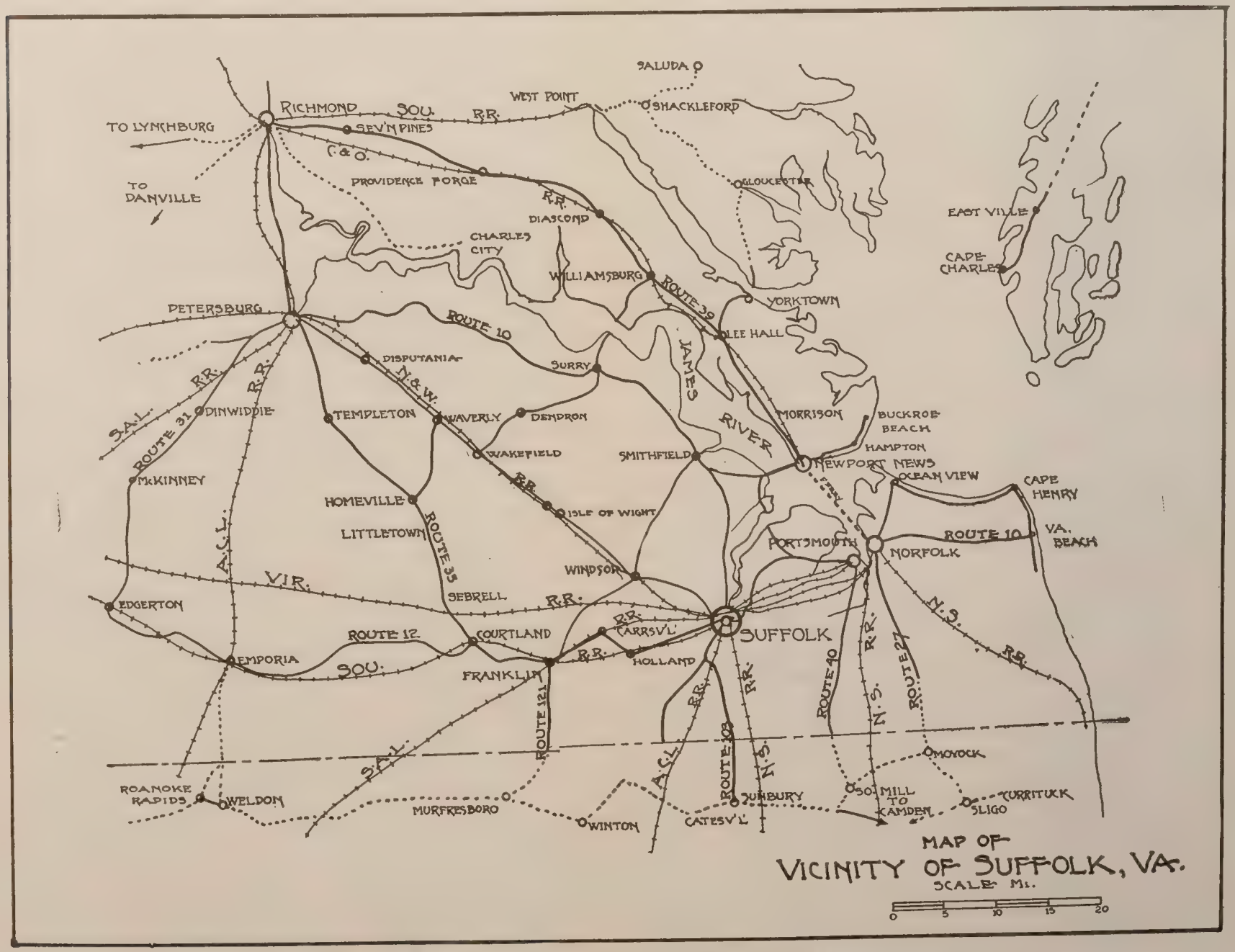
severely by the Indian massacre in 1622. During the remainder of the seventeenth century the county was gradually settled and practically all of the land patented. The county was divided into parishes and churches were established dating from 1642.

The early part of the eighteenth century was uneventful. The banks of the Nansemond River were developing as the trading center in tobacco for North Carolina, Virginia, and England. Tobacco warehouses were established at a number of points along the river. A mail route was established in 1788 from Williamsburg via Jamestown into North Carolina, which provided a monthly mail service. Nansemond County sent a contingent of soldiers to serve in the French and Indian War. Shortly after the war George Washington visited Nansemond County with a view to developing the forests of the Dismal Swamp. Under his direction a company was formed and a canal was dug from White Marsh Road to Lake Drummond known to this day as the Washington Ditch.

Much activity was shown by Nansemond County during the Revolutionary War. At the burning of Norfolk the people of Suffolk and Nansemond provided food and shelter for the destitute sufferers. Suffolk became an army depot, and a detachment of troops was constantly stationed in the town. The town was to suffer the same humiliation as Norfolk and was burned by General Mathews on November 18, 1779. Cornwallis crossed the county on his way to Yorktown at which time the militia of Nansemond County was called into service. The people of Suffolk and Nansemond furnished 800 soldiers for the Revolutionary War.

The War of 1812 was the occasion for further service by the militia of Nansemond County. The county was not invaded during this period, but its soldiers were constantly on guard and prepared for any emergency. One of the most notable events of the early nineteenth century was the visit of General Lafayette when on his tour through the United States. The people of Suffolk tried to outdo each other in conferring hospitality upon their distinguished visitor.

The Confederate army recruited 1,500 men from Nansemond and Suffolk. It was on May 12, 1862, that the Federals captured the city of Suffolk from which time that sec-


SALUDA
RICHMOND
SOU. R.R.
WEST POINT
SHACKLEFORD
TO LYNCHBURG
SEV'N PINES
C. & O.
TO DANVILLE
PROVIDENCE FORGE
R.R.
DIASCOND
GLOUCESTER
EAST VILLE
CAPE CHARLES
CHARLES CITY
WILLIAMSBURG
ROUTE 32
YORKTOWN
PETERSBURG
ROUTE 10
LEE HALL
DISPUTANIA
SURRY
JAMES RIVER
S.A.L. R.R.
N. & W.
DINWIDDIE
TEMPLETON
WAVERLY
DENDRON
MORRISON
BUCKROE BEACH
HAMPTON
ROUTE 31
WAKEFIELD
SMITHFIELD
NEWPORT NEWS
OCEAN VIEW
CAPE HENRY
McKINNEY
HOMEVILLE
R.R.
ISLE OF WIGHT
LITTLETOWN
ROUTE 35
PORTSMOUTH
ROUTE 10
VA. BEACH
NORFOLK
A.C.L. R.R.
WINDSOR
V.I.R.
SEBRELL
R.R.
EDGERTON
R.R.
CARRSV'L
SUFFOLK
ROUTE 12
COURTLAND
N.S. R.R.
EMPORIA
SOU.
R.R.
HOLLAND
FRANKLIN
ROUTE 121
ROUTE 10
R.R.
N.S.
ROUTE 27
MONOCK
A.C.L. R.R.
ROUTE 13
R.R.
N.S.
S.A.L.
JUNBURY
SO. MILL TO KAMDEN
CURRITUCK
SLIGO
ROANOKE RAPIDS
WELDON
MURFRESBORO
WINTON
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MAP OF
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tion of the county became a sort of "no man's land" and was pillaged almost daily by one army or the other. Gun boats came up the Nansemond River and there were minor engagements in and around Suffolk. The county was sadly depleted after the Civil War, the stock either being killed or driven away while the farms were left in a badly run down condition. The towns and cities were pillaged and burned. The old spirit of determination, however, began to show results about 1870 and the latter part of the nineteenth century showed notable progress in the development of the county.

The county and city assumed an important role in the World War, sending, through the draft board, 1,119 men, while others volunteered. Some of the most notable achievements of the last quarter century are the construction of hard-surfaced roads, the erection of telephone and electric light lines, and the construction of a number of industrial plants.

Population.—The population of Suffolk has grown rapidly during the last 25-year period. Its population increased from 1900 to 1910 by 83.1 per cent. and from 1910 to 1920 by 30.8 per cent. While Suffolk was making these large increases in population, the rural population increased only 3.3 per cent. from 1900 to 1910 and 1.6 per cent. from 1910 to 1920. It is estimated that there are 17,810 inhabitants in Suffolk and within a one-half mile radius of its boundaries. The census population figures for the past three decades are:

City of Suffolk		County	
1900	3,827	1900	19,251
1910	7,008	1910	19,875
1920	9,123	1920	20,119

Highways.—Nansemond County has 61 miles of hard-surfaced road. It has excellent state highway connections with nearby cities. Highway route No. 10, extending from Virginia Beach across the entire state to Cumberland Gap, the longest highway in Virginia, passes through Suffolk. This highway is improved by concrete and macadam construction throughout Nansemond County. State highway No. 12 leads into Suffolk from the southern Virginia towns

of Danville, South Hill, Emporia, and Franklin. Route No. 103 gives a highway outlet into North Carolina. One may enter Suffolk from the northwest or Petersburg by two excellent state highways, viz., highway route No. 10, and No. 35 from Petersburg to Courtland thence over route No. 12. Both of these highways are constructed the entire distance from Petersburg to Suffolk. No. 35 follows a southerly route approaching Suffolk from the west and No. 10 follows the James River and approaches Suffolk from the north. Another state highway has been designated leading directly from Suffolk through Isle of Wight County via Waverly to Petersburg. This highway will decrease the distance from Petersburg to Suffolk by about 15 miles. Other state highways have been located connecting the more important towns of Nansemond County.

The construction of the James River bridge by the James River Corporation in 1928 connects the Suffolk territory with Newport News and the north bank of the James River. This bridge is 4.4 miles in length and is one of the longest highway bridges in the world. The corporation has constructed some excellent concrete highway in order to approach the bridge from the south side. The bridge is a tremendous aid to transportation and more rapid communication throughout the Norfolk area.

PRESENT INDUSTRIAL DEVELOPMENT

Character of Present Industry

Diversified or Concentrated.—The industry of the Suffolk territory is reasonably diversified, altho the bulk of manufacturing has to do with peanuts. The "Food and Kindred Products" group represents approximately 80 per cent. of the value of manufactured products. There are eight additional census classifications present in the area which have values ranging from $175,000 to almost $2,000,000. A representation of nine out of a possible sixteen groups indicates that the city is not altogether dependent upon the peanut industry. The peanut industry is sufficiently predominant, however, to greatly affect the business of the community when it is disturbed. Development should be along lines which would further diversify the manufacturing interests.

Peanut Industry.—The peanut manufacturing concerns are principally responsible for the rapid growth of Suffolk. The Planters' Nut and Chocolate Company, the largest concern of its kind in the world, has shown amazing growth during the last decade. The plant not only cleans and shells peanuts, but produces huge quantities of candy which is sold under many different brands. There are 11 peanut plants in Suffolk carrying on some sort of manufacturing process. Some clean and shell, two manufacture candy, several produce oil, one makes peanut butter, while one utilizes the peanut hull in its process. The leaders in the industry generally agree that plants producing more peanut products should be situated in Suffolk.

Other Industrial Enterprises.—Lumber and allied products show the second largest volume of business. The three fertilizer plants cause the chemical industry to make a good showing among the manufactured products of the city. Textiles have advanced to fourth place in the industrial life of the community. Several large concerns, including the Benthall Machine Company, Inc., and the Ferguson Manufacturing Company, greatly augment the industrial output. With

an annual production of more than $25,000,000, Suffolk is well established as an industrial center.

CLASSIFICATION OF INDUSTRIES

Group I — Food and Kindred Products	Class No.*
Coca Cola Bottling Company	101
Lime Cola Bottling Company	101
Pepsi Cola Bottling Works	101
Wilson Beverage Company	101
Saunder's Bakery	102
B. L. Coggin & Company	105
Old Reliable Peanut Company	118
Southeastern Ice Utility Company	119
Suffolk Coal and Ice Company	119
Bain Peanut Company	123
Columbian Peanut Company	123
Lummis & Company	123
Newsome Feed and Grain Company	123
Planters Nut and Chocolate Company	123
Pond Brothers Peanut Company, Inc.	123
Producers Peanut Company	123
Suffolk Oil Mill, Inc.	123
Southern Oil and Feed Mill, Inc.	123
The Suffolk Peanut Company	123
†P. D. Pruden	128
Smithfield Meat Company	128

Group II — Textiles and Their Products	Class No.
Bell Hosiery Mills	235
Parker Hosiery Mill and Dye Works, Inc.	235
King Overall Company, Inc.	244
Suffolk Overall Company, Inc.	244

Group IV — Lumber and Allied Products	Class No.
Farmers' Manufacturing Company	404
Nansemond Truck Package Company	404
Suffolk Manufacturing Company	404
Virginia Casket Company	405
Norfleet Barrel and Box Company	406
Suffolk Excelsior Corporation	408
Criddle's Antique Shop	409

*The class number locates the industrial concern in the group and designates the product manufactured. "The Classification by Industries of the Census of Manufactures," published by the Department of Commerce, gives a complete key to the classification.

†This concern conducts a cotton ginning business in addition to its meat packing.

Group IV — Lumber and Allied Products	Class No.
Dill-Cramer-Truitt Corporation	412
American Lumber Corporation	412
J. E. Crocker Lumber Company	412
Pine Timber Mill	412
Suffolk Lumber Company	412
National Screen Company, Inc.	420

Group VII — Paper and Printing	Class No.
Butler Paper Box Company	703
Artcraft Corporation	716
Harrell & Rogers	716
Piland Printing Company	716
Suffolk News Company, Inc.	718

Group VIII — Chemicals and Allied Products	Class No.
*Dixie Guano Company	814
Piedmont Mt. Airy Guano Company	814
Suffolk Fertilizer Company	814

Group IX — Stone, Clay, and Glass Products	Class No.
American Brick Corporation	905
Nansemond Brick Corporation	905
Suffolk Clay Company, Inc.	905
Virginia Clay Products Corporation	905
Johnson's Marble and Granite Works	914
Suffolk Marble Works	914
Suffolk Monumental Works	914

Group XII — Machinery, Not Including Transportation Equipment	Class No.
Benthall Machine Company, Inc.	1201
Ferguson Manufacturing Company	1201

Group XIV — Transportation Equipment (Air, Land, and Water)	Class No.
J. M. Butler & Sons	1402

Group XVI — Miscellaneous Industries	Class No.
Howell & Kern	1636
Carl Schadel	1636
Spivey Brothers, Inc.	Unclassified
Suffolk Iron Works	Unclassified
Howell's Laundry	Unclassified
Suffolk Steam Laundry	Unclassified

*This concern conducts a cotton ginning business in connection with the manufacturing of fertilizer.

PEANUT WAREHOUSES

Firm Name	Capacity
Basnight & Company	60,000 bags
Birdsong Storage Company	40,000 bags
Martin & Sons, Inc.	87,000 bags
J. W. Perry Company	54,000 bags
J. Webb Pinner Company	100,000 bags
Suffolk Storage Company	60,000 bags
The Holland & Lee Company, Inc.	100,000 bags
Winborne & Company	60,000 bags
Planters Nut and Chocolate Company	800,000 bags
Total capacity	1,361,000 bags
Total capacity (bushels)	5,444,000
Total capacity (pounds)	119,768,000

INDUSTRIAL STATISTICS

Groups	Number employed	Payroll	Capital invested	Volume of business
Food and kindred products	2,211	$1,884,271.89	$5,426,537.12	$20,441,185.69
Textiles and their products	372	129,000.00	235,000.00	618,000.00
Lumber and allied products	758	481,064.55	1,061,546.11	1,773,081.95
Paper and printing	46	54,106.00	71,500.00	156,000.00
Chemicals and allied products	105	39,711.02	295,000.00	1,230,002.18
Stone, clay and glass products	151	106,900.00	299,898.52	255,300.00
Machinery, not including transportation equipment, and Transportation equipment, air, land, and water	45	99,010.00	227,528.00	366,502.00
Miscellaneous industries	65	47,788.55	98,000.00	177,309.02
Total	3,753	$2,841,852.01	$7,715,009.75	$25,012,380.84
Public utilities	76			
Peanut warehouses	69	$42,840.00	$1,053,000.00	$2,550,000.00

Peanut Warehouses.—The peanut commission business is of such proportions to merit attention here. It will be noted from the above statistics that more than $2,500,000 of peanuts are warehoused and sold. These buildings show an investment of more than $1,000,000. About 70 men work in the warehouses during the busy season which extends from November to March. The warehouse facilities of Suffolk are unusually well developed for the size of the city.

Table showing value added by manufacture in each census group follows:

Groups	Volume of business	Value of raw material	Added value
Food and kindred products	$20,441,185.69	$13,072,551.74	$7,368,633.95
Textiles and their products	613,000.00	316,000.00	297,000.00
Lumber and allied products	1,773,081.95	772,775.19	1,000,306.76
Paper and printing	156,000.00	49,000.00	107,000.00
Chemicals and allied products	1,230,002.18	930,000.00	300,002.18
Stone, clay, and glass products	255,300.00	72,550.00	182,750.00
Machinery, not including transportation equipment and Transportation equipment, air, land, and water	366,502.00	194,000.00	172,502.00
Miscellaneous industries	177,309.02	48,952.23	128,356.79
Total	$25,012,380.84	$15,455,829.16	$9,556,551.68

Value Added by Manufacture.—It can be observed from the above table that $9,556,551.68 was added by manufacturing processes. The additional value over raw materials is 62 per cent. This figure compares with 87 per cent. for the entire state, based upon 1925 census figures. The percentage of increase is low in Suffolk because the principal manufacturing process, that of handling peanuts, shows a small added value by industrial processes in comparison with other manufacturing in the state. Volume production is necessary in the peanut industry in order to insure profitable operations.

The statistical study below compares Suffolk with other Virginia cities. The data for comparison were taken from the biennial census of manufactures, 1925.

City	No. of establishments	Av. No. of wage earners	Wages	Cost of material	Value of products	Value added by manufactures (2)	Population (1920)
SUFFOLK (1)	62	3,753	$2,831,852	$15,455,829	$25,012,380	$9,556,551	9,123
Alexandria	26	1,007	1,189,356	1,409,786	3,370,532	1,960,764	18,060
Bristol	34	1,546	1,371,634	4,654,196	7,413,711	2,759,515	6,729
Charlottesville	23	465	533,905	1,576,162	2,527,733	951,571	10,688
Danville	32	3,060	2,537,500	6,955,894	12,302,293	5,346,399	21,539
Lynchburg	55	4,893	4,380,829	16,543,327	25,579,780	9,036,453	30,070
Newport News	32	6,010	7,185,852	8,628,442	19,719,194	11,090,752	35,596
Norfolk	181	5,429	5,989,935	19,903,408	35,454,752	15,551,344	115,777
Petersburg	78	3,408	2,644,226	10,926,877	17,342,476	6,415,599	31,012
Portsmouth	44	2,759	2,917,703	6,393,399	11,230,948	4,837,544	54,387
Richmond	301	18,137	17,960,860	73,973,048	157,449,998	83,476,950	171,667
Roanoke	78	6,998	8,777,770	18,410,651	32,013,237	13,602,586	50,842
Staunton	24	398	352,111	1,750,783	2,740,207	988,424	10,604

(1) Figures secured by this survey. (Includes several industries immediately outside of city limits).

(2) Value of products less cost of materials.

COMPARATIVE ANALYSIS

City	Wage earners per establishment	Annual earning per laborer	Wage cost ratio	Value of product per wage earner	Value of product per capita (1920)
SUFFOLK	**60**	**$754**	**0.11**	**$6,664**	**$2,741***
Alexandria	39	1,181	0.35	3,347	186
Bristol	45	887	0.18	4,795	1,101
Charlottesville	20	1,148	0.21	5,436	237
Danville	95	825	0.20	4,020	571
Lynchburg	89	895	0.17	5,250	852
Newport News	188	1,195	0.36	3,281	554
Norfolk	80	1,100	0.17	6,500	807
Petersburg	44	776	0.15	5,088	559
Portsmouth	62	1,057	0.26	4,070	206
Richmond	60	990	0.11	8,700	920
Roanoke	89	1,250	0.27	4,580	630
Staunton	16	884	0.12	6,885	258
Virginia	50	780	0.15	5,190	289

*This figure is somewhat out of proportion as 1928 industrial data is used while 1925 census figures are used with other cities. There is a sufficient margin, however, to establish Suffolk as one of the leading industrial cities of Virginia according to the index.

The above table presents much interesting comparative data which establishes Suffolk as an outstanding industrial city of Virginia. The 1920 census figures were used to derive values with the exception of Suffolk. The data collected by interviewing every industrial concern in this city is the basis of the values.

Wage Earners per Establishment.—The average number of wage earners per establishment is ten higher in Suffolk than all Virginia. The Suffolk figure was computed by including several concerns where only one or two men were employed, and in a great many cases less than ten were found. Suffolk ranks between the larger cities and the smaller ones. Of the number studied in the table, six Virginia cities show a larger number of wage earners per establishment, one the same, and six a less number. The range is from 16 in Stauton to 188 in Newport News.

Annual Earnings per Laborer.—In comparison with other Virginia cities this item places Suffolk at the bottom of the list. The low annual earnings per laborer in Suffolk is due to the unusually large number of negroes and the type of industry. The peanut industry is one in which unskilled workers can be profitably employed. A great number of negro girls work in these factories at a low wage. The standard of living of the colored population is lower than the white and consequently they are able to work at a less

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wage and still maintain their usual standard. A high average annual earning is generally indicative of heavy industries and skilled workers. Suffolk should have more industries employing skilled laborers. The range among the 14 Virginia cities studied is from $754 in Suffolk to $1,250 in Roanoke. The average annual earnings per laborer for the state is $780, about $30 higher than Suffolk.

Wage Cost Ratio.—This figure is derived by securing the ratio of wages to the value of the product. It is to be expected that with a large industrial output and a low annual earning per laborer that the wage cost ratio will be low. Suffolk ranks among the lowest of the Virginia cities and 0.03 below the state. The products manufactured in Suffolk are valuable and the labor which goes into the manufacturing process represents only a small portion of the cost of manufacturing. This is not true in Roanoke and Newport News where wages form a greater part of the manufacturing costs.

Value of Product per Wage Earner.—Suffolk ranks near the top of the 14 cities and goes ahead of the state in this respect. Richmond leads all of the cities with $8,700, while Newport News is at the bottom with $3,281 value per wage earner.

Value of Products per Capita.—This figure is derived by using the 1920 population. Suffolk outranks by a large margin all of the cities of the state and is about nine and one-half times greater than the average for Virginia. This is not an exact statement of conditions as several factories outside of the city contribute to the value of products yet the population is not included. The population immediately surrounding Suffolk has shown a marked increase in the last decade and if the population is counted as 17,800, the estimate of urban and suburban population, the value per capita would be $1,405, or $304 per capita greater than its nearest competitor. The figure indicates that Suffolk is one of the most industrialized cities of Virginia.

Industrial Sites

Suffolk Milling Company Property.—A corn mill was erected in Suffolk 23 years ago but has been maintained in

good condition. It has been remodelled from time to time and expert appraisers placed a valuation of $76,000 on it in 1923. The building is constructed of brick and corrugated iron and equipped with machinery in excellent condition. It is located between the Southern and Atlantic Coast Line railways, having a siding on each road. The banks will sell the property for $40,000, one fourth cash, the remainder on terms to suit purchaser. It can also be rented at a figure which would yield 6 per cent. on the sale price.

Other Sites.—There are a number of other excellent sites available for the location of new industries. There is ample space along railroads for extensive development. The Secretary of the Chamber of Commerce is in position to arrange with interested parties respecting the acquirement of sites. There is considerable warehouse space which may be utilized for manufacturing purposes. All of these sites are listed in the Chamber of Commerce office.

Planning Industrial Expansion.—New enterprises are coming of an entirely different nature from those now situated here. An excelsior plant is being constructed at this writing. This plant will utilize a portion of the timber resources of the surrounding area. It is proposed to locate other wood working plants.

The forest resources of the surrounding area would indicate that a pulp mill could locate and operate very successfully in Suffolk. This is a possibility that should be carefully investigated.

A large number of the people are interested in establishing a cotton mill. The proximity to Virginia and North Carolina cotton fields would indicate that Suffolk would be a satisfactory location for such a mill. Labor, power, and transportation are all congenial to the development of the cotton industry.

Manufacturers of goods used by the peanut industry may well consider the advisability of locating at the world's peanut market. A burlap bag plant could no doubt be operated here to considerable advantage. Peanut containers of various sorts is another suggestion.

The proximity of Suffolk to the tobacco fields of Virginia should cause the city to study the possibility of ex-

pansion in that direction. Tobacco is the leading manufactured product in the state and is still expanding. Surprisingly, the tobacco business has not developed in Suffolk. There is no concern using tobacco in manufacturing.

PRIMARY ECONOMIC FACTORS IN PLANT LOCATION

The principal divisions of this discussion represent those considerations which should be carefully studied before a plant is located or re-located. The matters discussed in this chapter are considered of primary importance and must be assiduously studied by any thoughtful manufacturer. Those essential elements of industrial production are natural resources, produced resources, labor, power, transportation, markets, public utilities, and climate.

Natural Resources

Clays.—There are extensive deposits of clay in the vicinity of Suffolk. They are sedimentary clays, and are usually of unconsolidated character, occurring in lense-shaped deposits. Almost every formation in the region contains deposits of clay suitable for the manufacture of common brick, while others are adapted to the higher grades of building brick, drain tile, hollow ware, and the cheaper grades of pottery. These clays lying close to the surface can be easily worked as it is only necessary to remove a few inches of the soil. The following log taken from the clay pit of one of the brick yards shows:

Top soil	1 ft.
Yellow clay	3 ft.
Blue clay	9 ft.
Sand	9 ft.
Blue marl	20 ft.

Tests of clay from above-mentioned deposit:*

Buff color
Good plasticity

Per cent. air shrinkage	10.3

At cone 1: — 2102° Fahr.:

Fire shrinkage	6.6%
Color	Red
Absorption	2.6%

*Taken from Bulletin IV — Physiography and Geology of the Coastal Plain Province of Virginia. Virginia Geological Survey.

At cone 3: — 2174° Fahr.:

Fire shrinkage	7.3%
Color	Dark red
Absorption	.60%

The top stratum which is a yellow clay loam sometimes grading into yellow and yellowish gray clay occurs in varying thicknesses. Sometimes this clay loam has been used when only a few inches thick, but usually beds of not less than three or four feet in thickness are worked. If the lower strata are used a product of considerably more strength, hardness, and denseness is obtained.

There are at the present time four brick yards located in the vicinity of Suffolk, manufacturing common brick and face brick. None of the clays is used for the manufacture of drain tile, hollow ware, and the cheaper grades of pottery. There has been some report of ball clays within this vicinity which are suitable for the manufacture of high grade pottery and chinaware.

Probably the greatest asset to the clay working industries is its location on the tidewater, since it allows an easily expanded market covering the large cities along the Atlantic coast.

Sand.—There are extensive sand deposits in the vicinity. Some of them are probably suitable for molding sand, and others for concrete and plaster.

Marl.—There are deposits of marl in the vicinity, as there are along the coastal plain, but they do not seem to have commercial value at Suffolk.

Timber

Timber Resources.—The Great Dismal Swamp with its timber resources penetrates well into Nansemond County. The area of the Swamp which lies in Virginia is about 150,000 acres. *The white cedar, commonly called juniper, occurs in swamps from Massachusetts to Georgia. The largest bodies of commercial timber are found in Virginia and North Carolina in the Dismal Swamp. It occurs in pure stands in areas known as "juniper glades" and mixed with

*"The White Cedar of the Dismal Swamp," by Alfred Akerman, Virginia Forestry Publication Number 30, treats the leading tree of the Swamp.

cypress, red maple, sour gum, and sweet gum in the "gum swamps." Other sections of Nansemond County as well as the territory to the north and west have stands of hardwoods and pine on the slopes. The loblolly pine is the leading pine, the short-leaf pine is found but outnumbered eight to one by the loblolly, and spruce pine occurs on the drier areas. White oak, post oak, southern red oak, scarlet oak, and hickory are the leading hardwoods.

The ravines of the area are wooded by beech, yellow poplar, bitternut hickory, elm, sycamore, sweet gum, white oak, red maple, black walnut, and butternut.

White Cedar.—The white cedar because of form, light weight, ease of working, relative strength, and durability is fitted for a number of uses. The long trunk and durability make it valuable for piles, telephone poles, and fence posts. It is used for cross-arms for telegraph and telephone poles on account of its light weight. The greatest demand for it at the present is for wash tubs, buckets, and freezer tubs. Its variety of uses enable a very close utilization.

Other Timber.—As has been suggested, there are other forest trees of commercial importance in the Dismal Swamp. These have not been carefully studied. There is no published statement of the forests of Nansemond County outside the Swamps, but the similarity to Surry County* on the northwest gives one some conception of the forest trees of commercial importance. The trees which occur have already been mentioned. Anyone interested in the hardwood forests of the area should read the above referenced publication.

Agriculture

Farm Statistics.—The following table prepared by the Agricultural Extension Division of V. P. I. presents statistical data of interest for Nansemond County:

Number of farms, 1925	1,997
Number acres of crop land, 1925	64,217
Number acres of pasture land, 1925	12,699
Number acres of woodland and wasteland, 1925	68,604
Average number of acres, per farm, 1925	78.6

*The Forests of Surry County, Virginia, by Alfred Akerman; Virginia Forestry Publication, Number 37, May 1925.

Value of all farm property, per farm, 1925	$5,927
Value of land and buildings, per farm, 1925	$5,242
Value of machinery and implements, per farm, 1925	$329.9
Value of livestock, per farm, 1925	$355.2
Percentage of owner-operated farms mortgaged, 1920	21.0
Percentage of owner-operated farms mortgaged, 1925	28.6
Percentage of tenantry, 1920	34.7
Percentage of tenantry, 1925	37.4

Peanut Production

Virginia is producing millions of pounds of peanuts annually. Sixteen southeastern Virginia counties produce all of the peanuts grown in the state, and their production by counties range from 20,000 pounds in Princess Anne County to more than 45,000,000 pounds in Southampton County. Suffolk is located in the heart of the peanut growing region and has become the leading peanut market of the world. The six counties bounded on the north by the James River, and on the west by a line drawn from Petersburg south to Emporia, on the south by the North Carolina line, and on the east by the Nansemond County line, produce 90 per cent. of the peanuts grown in Virginia. In the year 1927 these six counties produced approximately 103,000,000 pounds of peanuts out of a total production of 116,128,000 pounds. The nine large warehouses of Suffolk have a storage capacity of 119,768,000 pounds, sufficient to take care of the entire production of the peanut belt. There is additional warehouse space in a number of the peanut plants located in Suffolk. It can then be observed that this city has developed its peanut industry apace with the production and, therefore, has unusual claim for recognition as the leading peanut market of the world. Suffolk concerns handle practically as many peanuts produced in North Carolina as those grown in Virginia. The following tables show the peanut production by pounds in sixteen Virginia counties and in fifteen North Carolina counties over a period of five years.

PRODUCTION OF PEANUTS IN VIRGINIA — POUNDS

County	1923	1924	1925	1926	1927
Chesterfield	900,000	962,500	1,278,000	1,314,000	1,128,600
Charles City	----------	60,000	83,000	78,000	67,100
King William	----------	120,000	154,000	148,000	125,400
New Kent	----------	119,000	164,000	162,000	137,500
Brunswick	1,680,000	1,430,000	1,816,500	1,660,000	1,408,000
Dinwiddie	5,184,000	4,260,000	6,766,000	5,734,000	4,872,000
Greensville	5,412,000	3,770,000	4,648,000	5,550,000	4,675,000
Isle of Wight	19,998,000	8,340,000	17,604,000	16,830,000	14,382,000
Mecklenburg	298,000	552,500	837,000	801,000	663,300
Nansemond	15,358,000	11,340,000	22,535,800	20,691,000	17,595,000
Norfolk	30,000	45,500	69,000	65,800	58,000
Prince George	11,340,000	5,133,000	9,191,000	7,980,000	6,835,000
Princess Anne	20,000	19,500	31,200	29,700	23,000
Southampton	31,605,000	22,470,000	45,045,000	44,070,000	37,323,000
Surry	15,070,000	6,110,000	11,615,000	11,252,000	9,562,600
Sussex	15,865,000	13,268,000	21,682,500	20,254,000	17,272,000
State totals	122,760,000	78,000,000	141,841,000	136,620,000	116,128,000

PRODUCTION OF PEANUTS IN 15 NORTH CAROLINA COUNTIES — POUNDS

County	1923 (computed 900 lbs. per acre)	1924	1926	1927
Hertford	19,407,600	21,559,680	26,404,860	24,942,946
Northampton	24,426,900	25,016,560	31,440,880	34,350,960
Bertie	23,268,600	30,448,455	37,920,464	35,341,691
Chowan	8,375,400	10,091,070	10,215,758	11,042,100
Perquimans	4,756,500	5,574,612	8,731,675	8,780,540
Gates	9,497,700	6,873,870	11,890,563	12,721,470
Halifax	13,713,300	21,782,670	17,782,400	29,440,320
Edgecombe	9,275,400	10,149,040	11,624,247	14,916,888
Martin	16,846,200	15,826,070	20,552,625	21,359,620
Washington	4,104,900	5,674,560	5,975,100	6,442,150
Tyrrell	354,600	468,000	845,000	830,300
New Hanover	294,300	312,000	509,400	1,073,000
Pender	7,024,500	3,913,860	3,070,200	3,855,060
Onslow	6,840,000	5,626,800	5,387,728	9,758,800
Bladen	190,800	92,700	191,232	392,940
Total	148,376,700	163,409,947	192,542,132	215,248,585

Agricultural Products.—There is nothing noteworthy regarding the remaining agricultural production of the county except to observe the increase in tobacco yield in the last five years. The table gives a picture of the agricultural production:

Number acres of hay harvested	1922	13,800
Number acres of hay harvested	1927	19,000
Number acres of corn harvested	1922	23,000
Number acres of corn harvested	1927	21,000
Number pounds tobacco harvested	1923	297,000
Number pounds tobacco harvested	1927	672,000
Number of chickens	1920	76,099
Number of chickens	1925	73,643

Number sheep and lambs	1923	600
Number sheep and lambs	1927	650
Number swine	1923	22,000
Number swine	1927	13,680
Number dairy cows	1920	1,482
Number dairy cows	1925	1,569
Average production, per cow	1920	182 gals.
Average production, per cow	1925	396 gals.
Number of all cattle	1923	3,600
Number of all cattle	1927	2,200
Number of mules and colts	1923	2,250
Number of mules and colts	1927	2,860
Number of horses and colts	1923	1,900
Number of horses and colts	1927	1,180
Number of apple trees	1925	11,520

Labor

Supply.—This survey reveals 3,753 employed in the 62 industrial concerns of Suffolk. There is an average employment of 145 in the public utilities and peanut warehouses. The peanut warehouses employ a considerable number during the busy season, which lasts about four to six months, and the remainder of the year these firms employ one or two men and in some instances are closed. Due to the seasonal character of some employment a considerable number of laborers are idle a portion of the year. This creates a seasonal labor supply which should be utilized by industry which could operate full time during the slack season of the already established concerns. It will be noted from the analysis of labor which follows that there are relatively few white girls engaged in industry. Undoubtedly a greater number of white girls could be available for industrial work if they were shown the advantages of employment. An educational campaign along this line should produce an additional supply of white female labor sufficient for present needs and provide for expansion. The number of white men engaged in industry in comparison with the colored men would also indicate that white male labor could be recruited. It is further thought that the negro labor supply of Suffolk and Nansemond County could be increased for industrial purposes.

ANALYSIS OF SUFFOLK LABOR

Group	No. employed	WHITE		COLORED		Skilled	Unskilled
		Male	Female	Male	Female		
Food and kindred products	2,211	277	87	496	1,351	443	1,768
Textiles and their products	372	52	165	14	141	20	352
Lumber and allied products	758	95	4	230	429	58	700
Paper and printing	46	24	20	2	0	27	19
Chemicals and allied products	105	10	4	91	0	34	71
Stone, clay, and glass products	151	20	0	131	0	12	139
Machinery, not including transportation equipment, and Transportation equipment, air, land, and water	45	36	2	7	0	31	14
Miscellaneous industries	65	28	6	4	27	22	43
Total	3,753	542	288	975	1,948	647	3,106
Public utilities	76	35	29	12	0	50	26
Peanut warehouses	69	14	2	53	0	0	69
Grand total	3,898	591	319	1,040	1,948	697	3,201

Nationality and Race.—The labor supply is predominantly native-born as is true throughout Virginia and the South. As revealed in the table, about 78 per cent. of the workers are colored and 22 per cent. white. About 52 per cent. of the total number of employees are negro girls. This largely accounts for the low wage cost ratio. Labor in Suffolk is contented and there are no difficulties between the races.

Type.—Of the total number engaged in industry 3,106 are classed as unskilled and 647 as skilled. These figures reveal that 82 per cent. of all employees are unskilled. The industry of the city does not require a large proportion of skilled labor, thereby making it possible to utilize the unusually large proportion of colored labor.

Wage Scale.—Labor can be employed at wages attractive to industry. Skilled workers receive a very good wage, but the great mass of unskilled employees receive average or low wages. The various classes of labor are employed at wages within the range of the following scale:

Skilled, male	Weekly,	$25.00—$45.00
	Hourly,	.50— .80
Unskilled, white, male	Weekly,	$15.00—$25.00
	Hourly,	.20— .40
Unskilled, colored, male	Weekly,	$ 9.00—$20.00
	Hourly,	.15— .35
Female, white	Weekly,	$12.00—$20.00
Female, colored	Weekly,	$ 6.00—$10.00

Labor Laws.—The state law does not limit the number hours of employment for males over 16 years of age. Females over 16 are limited to 10 hours of employment in each 24 hours. Males and females alike, between the ages of 14 and 16 are limited to 8 hours per day, 44 hours per week, and night employment is prohibited at these ages. Children under 14 years of age can not be employed. Those between the ages of 14 and 16 must obtain a certificate from the school attendance officer before they can be employed.

A compulsory workmen's compensation law operates when a manufacturer has 11 or more employed.

Power

Source.—The power used in Suffolk is almost entirely electric, and is supplied by the Virginia Electric and Power Company. This company has steam generating plants at Norfolk, Richmond, and Roanoke Rapids, and hydro-electric plants at Roanoke Rapids, Petersburg, Richmond, and Fredericksburg, all connected with Suffolk by three separate transmission lines. Practically any desired amount of power can be supplied.

Rates.—The company has a number of rate schedules but the two most generally applied are:

(A) Retail light and power:

First	100 K.W.H., monthly	.085	per K.W.H.
Next	150 K.W.H., monthly	.06	per K.W.H.
Next	450 K.W.H., monthly	.045	per K.W.H.
Next	1,800 K.W.H., monthly	.035	per K.W.H.
Next	7,500 K.W.H., monthly	.03	per K.W.H.
Next	20,000 K.W.H., monthly	.025	per K.W.H.
Excess over	30,000 K.W.H., monthly	.0225	per K.W.H.

Minimum charge, $1.00 per month for each meter.

(B) Wholesale industrial power schedule:

Demand charge:

First 25 K.W. or less of demand	$37.50 per month
Next 25 K.W. of demand	1.25 per month per K.W.
Over 50 K.W. of demand	1.00 per month per K.W.

Energy charge:

In addition to the demand charges above specified, a meter rate will be charged for electricity consumed as follows:

First	1,000 K.W.H. consumed per month,	.025 per K.W.H.
Next	4,000 K.W.H. consumed per month,	.02 per K.W.H.
Next	10,000 K.W.H. consumed per month,	.015 per K.W.H.
Next	35,000 K.W.H. consumed per month,	.0125 per K.W.H.
Excess over	50,000 K.W.H. consumed per month,	.01 per K.W.H.

Transportation

Railroad Facilities.—Suffolk is served by six railroads thereby giving unusual freight and passenger transportation. There are six freight stations in the city, one for each railroad. The total value of real estate and tangible personal property owned by the railroads in Suffolk is $393,203. Data concerning trackage and interchange is set forth in the following schedule:

Railroad	Storage track	Team track	Private sidings	Passing track	Interchange
Atlantic Coast Line	3,750 ft.	1,500 ft.	6,500 ft.	5,000 ft.	N.S.; N. & W.
Southern	2,600 ft.	400 ft.	----------	2,150 ft.	N.S.; N. & W.;A.C.L.
Norfolk Southern	2,500 ft.	200 ft.	----------	----------	S.A.L.; Sou..; Vgn.; N. & W.; A.C.L.
Norfolk & Western	7,700 ft.	400 ft.	----------	----------	S.A.L.; N.S.; A.C.L.; Sou.
Seaboard Air Line	1,100 ft.	800 ft.	----------	2,775 ft.	Vgn.; N.S.
Virginian	700 ft.	----------	125 ft.	7,080 ft.	S.A.L.; N.S.

Switching.—The Norfolk Southern Railroad Company has physical connection with the other five railroads and serves as a belt line for the city. Rates covering switching between all lines within the switching limits of the city are set forth in the following schedule:

(Expressed in cents per car)

Between	A. C. L.	N. S.	N. & W.	SOU.	S. A. L.	VGN.
Atlantic Coast Line	X	360	270	270	540	540
Norfolk Southern	360	X	360	360	360	360
Norfolk & Western	270	360	X	270	540	540
Southern	270	360	270	X	540	540
Seaboard Air Line	540	360	540	540	X	270
Virginian	540	360	540	540	270	X

The above switching charges are absorbed in the line haul rate on competitive business. All switching on coal and coke is absorbed.

Freight Class Rates.—The schedule below presents freight class rates from Suffolk to a number of representative points. The freight rate structure of Virginia is in a rather chaotic condition but is being gradually adjusted. The new schedule provides for twelve classes as is shown in the schedule but the rates to some points still are effective under the old structure. The Governor has a commission at work on the matter of freight rate revision and constructive results are expected in the near future.

Commodity Rates.—Commodity rates have been established on a limited number of commodities moving into and out of Suffolk. These rates on inbound and outbound traffic are given in the table on page 31.

Passenger Service.—The passenger service is good, as the city is situated on a number of trunk lines. There are 33 pasenger trains into Suffolk daily. The passenger hours from a number of representative points to Suffolk are shown on the chart on page 32.

Water Transportation.—Suffolk is located on the Nansemond River about 15 miles above Hampton Roads. The channel has a depth of 10 feet at low water.

Proposed Improvements.—The River and Harbor's Bill now pending before Congress carries a provision for constructing a channel 12 feet deep and 100 feet wide as far as Suffolk, with a turning basin 200 feet in width. The proposed improvement anticipates an expenditure of $92,300 for construction and $3,500 annually for maintenance.

Wharves.—About 3,000 feet of wharves owned by railroads and industrial concerns are now available. The 1926 figures reveal that 410,937 tons of freight were moved to and from Suffolk by water.

Hampton Roads.—The great port of Hampton Roads is only a few miles from Suffolk. The rail and water transportation pass into this unusually well equipped and developed seaport. Hampton Roads is the port for more than 50 regular steamship lines. The port is primarily a coal harbor. It passes commerce in excess of 22,000,000 tons yearly, about 9,000,000 of which is foreign commerce. The port enjoys differential rail rates, in comparison with North Atlantic points, to trading centers in the middle west. The import

FREIGHT CLASS RATES FROM SUFFOLK
(Expressed in cents per 100 pounds)

TO	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
New Orleans, La.	235	200	165	129	106	94	82	71	59	53	47	41
Memphis, Tenn.	211	179	148	116	95	84	74	63	53	47	42	37
Jacksonville, Fla.	172	146	120	95	77	69	60	52	43	39	34	30
Birmingham, Ala.	193	164	135	106	87	77	68	58	48	43	39	34
Nashville, Tenn.	194	165	136	107	87	78	68	58	49	44	39	34
Raleigh, N. C.	94	80	66	52	42	38	33	28	24	21	19	16
Savannah, Ga.	151	128	106	83	68	60	53	45	38	34	30	26
Columbia, S. C.	134	114	94	74	60	54	47	40	34	30	27	23
Charlotte, N. C.	126	107	88	69	57	50	44	38	32	28	25	22
Atlanta, Ga.	169	144	118	93	76	68	59	51	42	38	34	30
Asheville, N. C.	145	123	102	80	65	58	51	44	36	33	29	25
Chattanooga, Tenn.	173	147	121	95	78	69	61	52	43	39	35	30
Wilkes Barre, Pa.	100½	85½	75½	60	50	41½	41½	50	41½	41½	.....	.....
St. Louis, Mo.	150	131½	103½	71	61	50½	112	83	.....	.....	.....	.....
Indianapolis, Ind.	116	102	81	55½	47½	39	86½	65	.....	.....	.....	.....
Chicago, Ill.	126	110½	87½	60	51½	42½	94	70	.....	.....	.....	.....
Detroit, Mich.	106½	93	70½	48½	41	34	79	56½	.....	.....	.....	.....
Buffalo, N. Y.	106½	93	70	48	40½	33½	79	56	.....	.....	.....	.....
Columbus, O.	106½	93	70½	48½	41	34	79	56½	.....	.....	.....	.....
Pittsburgh, Pa.	106½	93	70	48	40½	33½	79	56	.....	.....	.....	.....
							A	B	C	D	J	K
Norfolk, Va.	31½	25	20½	17½	14½	12½	11½	12½	11½	11½	17½	9½
Lynchburg, Va.	94½	79	63½	43½	34½	28	28	34½	28	28	43½	28
Roanoke, Va.	96½	82	65½	53	36½	29	29	36½	36½	36½	46	29
Richmond, Va.	65½	54	47½	38½	32	25½	25½	28	25½	25½	32	18½
Boston, Mass. (R&W)	88½	78½	69½	53½	44	40½	40½	44	40½	40½	.....	.....
Washington, D. C. (R&W)	72	60½	52	46	35	31	31	35	31	31	.....	.....
Baltimore, Md. (R&W)	72	60½	52	46	35	31	31	35	31	31	.....	.....
Philadelphia, Pa.	81½	70	61½	47½	40½	34	34	40½	34	34	.....	.....
New York, N. Y.	81½	70	61½	47½	40½	34	34	40½	34	34	.....	.....
Boston, Mass.	107½	94	83½	66	53½	47½	47½	53½	47½	47½	.....	.....
Baltimore, Md.	91½	73½	66½	58½	46	38½	38½	44½	38½	38½	.....	.....
New York, N. Y. (R&W)	74½	64	56	43	37	32	32	38	32	32	.....	.....
Toronto, Canada	128	111½	85	59	51	42	*(95)	*(68)	.....	.....	.....	.....
Louisville, Ky.	107½	94½	75	51½	44	36½	*(80½)	*(60)	.....	.....	.....	.....
Huntington, W. Va.	106½	93	70½	48	40½	33½	*(79)	*(56)	.....	.....	.....	.....
Cincinnati, O.	107½	94½	75	51½	44	36½	*(80½)	*(60)	.....	.....	.....	.....
Charleston, W. Va.	106½	93	70	48	40½	33½	*(79)	*(56½)	.....	.....	.....	.....

*() Takes rate governed by Rule 25 and Rule 26.
R&W—Rail-Water. Brooklyn, N. Y. takes same rate as New York on water and rail.
Lettered Classification for Southren Classification Points represent old rate scale before being revised on January 15, 1928.

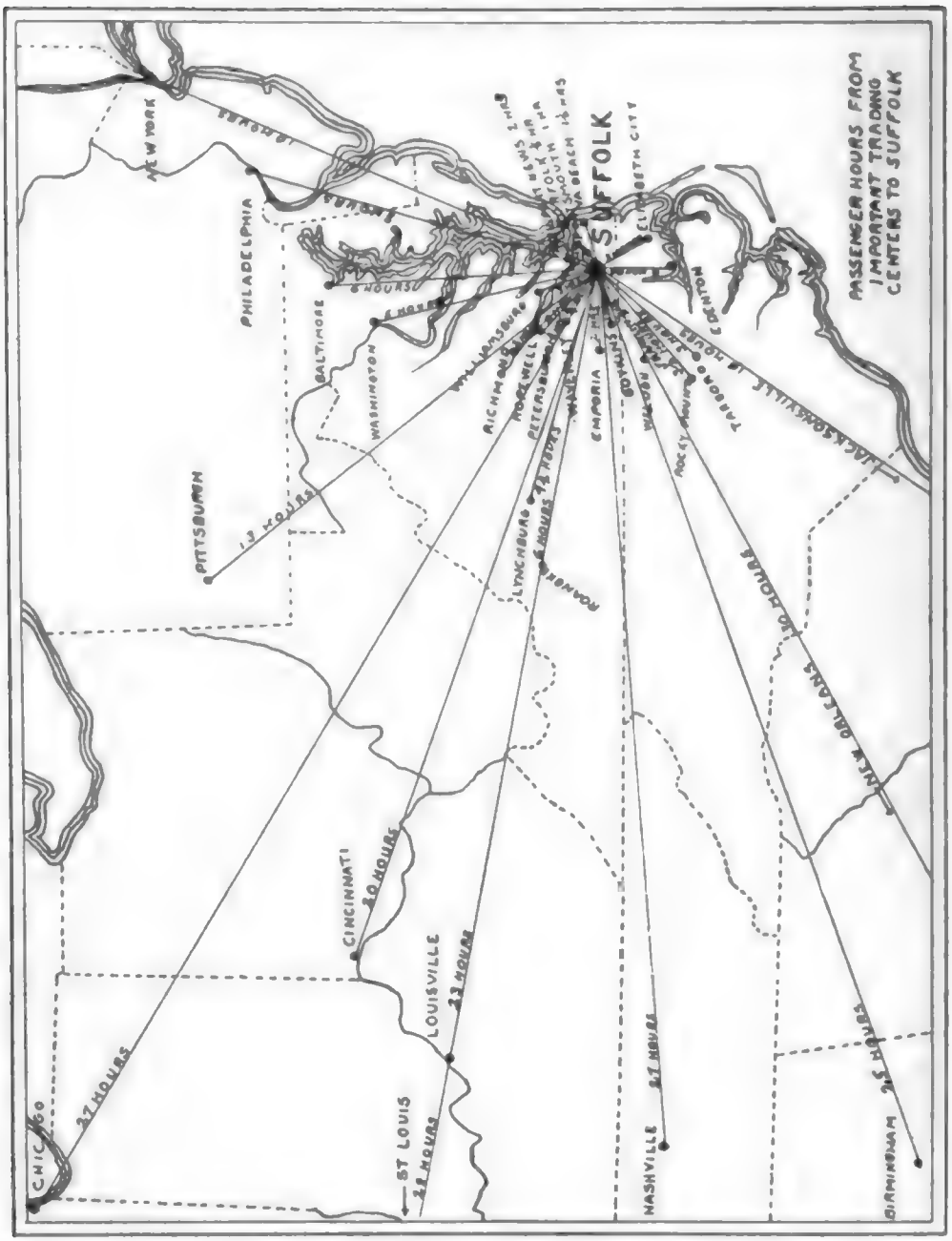
COMMODITY RATES ON OUTBOUND FREIGHT

Cities	Peanuts	Crude peanut oils	Ground peanut hulls	Peanut oil cake meal	Fertilizer	Lumber	Sawdust	Brick	Land plaster	Building lime	Cities
Chicago, Ill.	60				95*				88*	6½	Windsor, Va.
New York, N. Y.	40½				145*				126*		Waverly, Va.
Boston, Mass.	44				165*				139*	8	Disputanta, Va.
Baltimore, Md.	31½					4½		3½			Norfolk, Va.
Pittsburgh, Pa.	48						21½				Perth Amboy, N. J.
Cleveland, Ohio	48							5½			Hopewell, Va.
Columbus, Ohio	48½	30						6½			Richmond, Va.
Cincinnati, Ohio	51½										
St. Louis, Mo.	71										
Kansas City, Mo.	109										
Minneapolis, Minn.	84										
St. Paul, Minn.	84										
Milwaukee, Wis.	60										
Detroit, Mich.	48½										
Toledo, Ohio	48½										
Wilkes Barre, Pa.	47										
Memphis, Tenn.	58										
Philadelphia, Pa.		31½									
Norfolk, Va.			6½	80*							
Ashland, Ohio			22½								
Weirton, W. Va.			22½								
Granite City, Ill.			35								
Petersburg, Va.				135*							
Roanoke, Va.				250*							

COMMODITY RATES ON INBOUND FREIGHT

Cities	Glass jars	Grain	Oats	Nails	Live stock	Flour	Sugar	Building lime	Pulp board	Sulphate ammonia	Cooperage stock
Glassport, Pa.	33½										
St. Louis, Mo.		31			105½						
Nashville, Tenn.			31								
Pittsburgh, Pa.				38						25	
Johnson City, Tenn.					53½						
Lowell, Mich.						33½					
Chicago, Ill.						29½					
Engle, W. Va.								340*			
New York, N. Y.							24				
Philadelphia, Pa.							24				
Kalamazoo, Mich.									36½		
Napoleon, Ohio											31

*Ton



business should be increased in order to properly balance the business handled through the harbor.

Bus Transportation.—The Edgerton Bus Lines maintain a regular schedule between Norfolk, Suffolk, Franklin, Courtland, and Edenton. The company operates on a schedule by which 15 trips are made daily each way between Norfolk and Suffolk. Six trips are made between Suffolk and

Franklin daily on the western end of the line. Two of these busses go into Courtland. The service is exclusively for white passengers. The company also operates a line from Edenton to Norfolk for white and colored passengers on a schedule of two trips daily each way.

Colored Bus Lines.—The Davis' Bus Line operates between Suffolk and Portsmouth; Southall's between Suffolk and Portsmouth; Suffolk-Newport News Line between these two points; and another maintains a regular schedule of five trips daily between Suffolk and Franklin.

Trade Territory

Determination of Trade Territory.—It is difficult to define the trade territory of Suffolk. Its proximity to the large centers of Norfolk, Petersburg, and Richmond undoubtedly affects its trade area. In a study of the trade territory of Norfolk, Suffolk would unquestionably be included in the Norfolk area. There are, however, a number of wholesale establishments in Suffolk, some branches of Norfolk concerns, which control the business over a certain trading area.

Local merchants report that they have retail customers located 40 to 60 miles from Suffolk. The wholesale firms state that they work from 100 to 120 miles from the city. There may be concerns which ship to much more distant points but it obviously would be unreasonable to consider these outlying points as being a part of the Suffolk trading territory.

The railroads entering Suffolk determine to a great extent the direction and area of the trading region. The railroads enter the city principally from the west and south, thence terminating in the Norfolk area. This compels us to the conclusion that the Suffolk trading area lies principally to the west and south.

Territory Defined.—In view of the determining factors mentioned above, the trading territory of Suffolk may be considered as composed of the following counties in Virginia and North Carolina—**Virginia:** Nansemond, Southampton, Isle of Wight, Greensville, Sussex, one-half Surry, and one-half Brunswick; **North Carolina:** Bertie, Gates, Northamp-

ton, Hertford, Camden, Chowan, Halifax, Nash, Edgecombe. This territory is unquestionably divided with other cities although Suffolk firms predominate in it.

Description.—The Virginia counties have a population of 110,865, the North Carolina counties 213,561, making a total of 324,426 in the entire territory. This region has an area of 2,581 square miles in Virginia, 4,150 square miles in North Carolina, a total of 6,731 square miles. The density of the population in the Virginia region is 42.9 per square mile, in the North Carolina region 51.4 per square mile, an average density of 48.2 per square mile in the entire trading territory. The negro proportion of the population will vary from one-third to more than one-half in each of the several counties.

Rail Connections.—The Norfolk and Western, Virginian, and Southern railways provide transportation for the Virginia territory. It is assumed that goods can be delivered from Suffolk west to the points where the Virginian and the Southern intersect the Atlantic Coast Line. The Atlantic Coast Line and the Seabord Air Line transport goods into the North Carolina territory. The Norfolk Southern going out of Norfolk along the coast compels Suffolk to give up to Norfolk the trade of the counties adjacent to the coast in northeast North Carolina. It is observed, however, that more than one-half of the Suffolk trade territory lies in the neighboring state of North Carolina.

Markets for Manufactured Products.—It has already been pointed out that Suffolk is noted for its peanut market. Suffolk peanut plants ship their products to all parts of the United States, Canada, and England. The majority of the manufacturing concerns dispose of their products in the states of Virginia, North Carolina, Maryland, West Virginia, and Delaware. Some of the manufacturers ship to the South, the New England States, and the Middle West. Approximately one-half of the manufacturing enterprises sell their products locally and are distinctly dependent upon the wealth of the trading territory for their prosperity.

Water Supply

Operation.—The water supply of Suffolk is purchased from the municipally-owned supply of the city of Ports-

mouth, Virginia. It is fully metered and charged for according to the following schedule:

Service Charge per Month

½ inch service meter	$ .25
¾ inch service meter	.75
1 inch service meter	1.50
1½ inch service meter	3.50
2 inch service meter	6.00
3 inch service meter	14.00
4 inch service meter	24.00
6 inch service meter	54.00
8 inch service meter	96.00

Monthly Meter Rate

First 75,000 gals.	$.25 per 1,000 gals.
75,000 to 6,000,000 gals.	.18 per 1,000 gals.
Over 6,000,000 gals.	.15 per 1,000 gals.

Minimum Charge

Building having toilet or bath, $3.00 per month.
Building without toilet or bath, $2.25 per month.

Proposed Rates.—New industrial water rates have been proposed and will most likely be made effective in the near future. These rates with a comparative statement are:

First 3,500 cu. ft.* per month	18 cents per 100 cu. ft.
All over 3,500 cu. ft. per month	12 cents per 100 cu. ft.

Comparison based on 175,000 gallons consumption:

Present rates:		
75,000 gals. at 25 cents	$18.75	
100,000 gals. at 18 cents	18.00	$36.75
Proposed rates:		
37,250 gals. at 24 cents	8.94	
137,750 gals. at 16 cents	22.04	30.98
Difference		$ 5.77

Quantity.—The present consumption of Suffolk averages about 6,000,000 gallons per day. The available supply is several times this amount.

*18 cents per 100 cu. ft. is equivalent to 24 cents per 1,000 gals.
12 cents per 100 cu. ft. is equivalent to 16 cents per 1,000 gals.

Source.—The water is drawn from several natural lakes augmented by artificial means. The principal one is Lake Kilby on the outskirts of Suffolk. Lake Cohoon about three miles away is not at present used but is held in reserve.

Distribution System.—The water is pumped by four pumps with a combined capacity of approximately 20,000,000 gallons per day to a stand pipe 140 feet high from which it is distributed by gravity. There are about 20 miles of street mains varying in size from 6 inches to 16 inches. The pressure in the mains is approximately 55 pounds per square inch.

Quality.—The water is treated by coagulation with alum, sand filtration, and chlorination. The quality is very satisfactory as indicated by bacteriological analysis by the State Board of Health.

The following is a chemical analysis supplied by the Portsmouth Water Department made by the Department of Interior, Washington, D. C.:

(Margaret D. Foster, analyst)

	Parts per million
Silica (SiO_2)	3.2
Iron (Fe)	.22
Calcium (Ca)	3.6
Magnesium (Mg)	1.2
Sodium (Na)	3.9
Potassium (K)	.7
Bicarbonate radicle (HCO_3)	2.4
Sulphate radicle (SO_4)	12.
Chloride radicle (Cl)	5.1
Nitrate radicle (NO_3)	Trace
Total dissolved solids at 180°C.	43
Total hardness as $CaCO_3$ (calculated)	14

Coal

Source.—The coal used in Suffolk comes from the fields of Virginia and West Virginia. The greater part of the supply is secured from the Pocahontas and Thackers fields. Some of the industries use a considerable portion of run of mine coal.

Rates.—The freight rates on coal from various Virginia and West Virginia fields are:

Norfolk and Western Railway Mines

Group 1—Merrimac Mines	$2.52
Group 2—Pulaski and Parrott Mines	2.52
Group 3-4—Pocahontas and Clinch Valley Mines	2.65
Group 5—Thackers Mines	2.75
Group 6—Kenova Mines	2.75

Virginian Railway Mines

Montgomery District	2.52
Southern West Virginia	2.65

Chesapeake and Ohio Railway Mines

New River District	2.65
Kanawha District	2.75
. . . . .	
Pennsylvania Anthracite Coal	3.91

Gas

Source.—Gas is supplied by The Suffolk Gas-Electric Company through approximately 16 miles of mains. The city is well covered with mains thereby making service available to nearly all residents. The generating plant is of ample capacity and operates at about 60 per cent. of its maximum capacity. An average pressure of six water column inches is maintained which is adequate for domestic or industrial use. The plant is arranged in order to increase the generating capacity without difficulty in case the demand should justify it. The company assumes a liberal attitude toward expansion and is in a position to extend its main where business warrants.

Quality of Gas.—The gas is of good and uniform quality. It is tested for heating value and pressure daily. The service corresponds to standards of good practice prevalent in the gas industry.

Rates

The retail rate schedule is:

	Gross	Net
First 500 cu. ft. or less	$1.00	$1.00
Next 4,500 cu. ft. or less	1.95	1.85 per 1 M. cu. ft.
Next 10,000 cu. ft. or less	1.85	1.75 per 1 M. cu. ft.
All above 30,000 cu. ft. or less	1.45	1.35 per 1 M. cu. ft.

The wholesale rate is:

	Gross	Net
First 50 M. cu. ft. or less per mo.	$55.00	$50.00
All above 50 M. cu. ft. per mo.	1.00	.90 per M.

An industrial rate is:

Customer charge	$12.00 per year per meter
Demand charge	.06 per month per cu. ft. of maximum hourly demand
Consumption charge	1.20 per 1 M. cu. ft. for 20,000 cu. ft. 1.10 per 1 M. cu. ft. over 20,000 cu. ft.

Telephone Service

Equipment and Facilities.—The Chesapeake and Potomac Telephone Company of Virginia serves the city of Suffolk. The central station is housed in a new fire-proof building which it leases. The switchboard is of the common battery, manual type with 7½ local positions and 6½ toll positions. A 200 line addition to the switchboard is contemplated during 1929.

Service.—There are 1,909 connections of which 1,129 are residence and 780 business.

Rates.—The monthly rates for telephone service within one mile radius of central station are:

	Individual line station	Auxiliary line station	Two-party line station	Extension station
Business	$4.00	$3.00	$3.50	$1.25
Residence	2.75	.....	2.00	.75

Climate

Location.—Suffolk is situated in the coastal plain of southern Virginia, about 25 miles from the Atlantic Ocean, and has the climate characteristic of this area. The average elevation above sea level is 50 feet.

Weather Bureau Extract.—The following extract is quoted from the report of the U. S. Weather Bureau for southern Virginia, which includes Suffolk:

> Water has a great capacity for heat and both stores it up and liberates it slowly. Hence over the coastal plain, where the effect of this quality is operating most strongly, the daily range of temperature is less than in other portions of the section. As might be expected, this condition is most marked along the immediate coast, where the monthly and seasonal temperatures range between moderate limits. The daily and annual extremes of temperature are less than those of the central and western portions of the section. This results in considerably retarding the date of frost formation in the fall as compared with other parts of the section, while in the spring frosts cease much earlier. In this way a longer period of crop

growth, free from the probability of damage by frosts, is had than obtains in other parts of the section.

Throughout the middle counties the climate is characterized by an increase in the variability and range of temperature. This is true in a moderate degree of the eastern tier, which is about 100 miles west of the Atlantic Ocean, and the condition is accentuated westward over the rolling lands, with their greater elevation and more decided contours, until the western limit of the section is reached. Local control then becomes more sharply defined, owing to the distance from the sea, about 250 miles, and the rugged and mountainous character of the country. The extremes of temperature in winter are greater, radiation proceeds more freely on account of the greater frequency of clear skies, and frosts occur later in the spring and earlier in the fall than in the coastal plain counties. The extremes of temperature and frost data are shown in tables in the latter part of this paper.

The mean temperatures of the section show little change during the winter months, the December average being 2.1° above that of January in the coastal plain, 1° above in the middle counties, and 2.6° above in the Piedmont counties, while the difference between the January and February means is less than 1° in each division. In the spring, however, there is an increase over the winter means of 19° in the coastal plain counties, of 17° in the middle counties, and of 16° in the Piedmont counties. During the summer season the differences in the mean temperatures from month to month are relatively small, not exceeding 4.5° in any division; but in the fall as the temperature begins to recede toward its winter averages the change from month to month becomes progressively greater, the average decrease from the summer means being 11.5° in the coastal plain, 10.9° in the middle counties, and 11.5° in the Piedmont counties. The mean monthly maximum and minimum temperatures follow the same course, except that in the winter the mean minimum temperatures become progressively lower until February, in which month the lowest average is reached.

The maximum temperatures do not differ greatly in degree or as between the divisions, the highest of summer being 102° in the coastal plain, 105° in the middle counties, and 103° in the Piedmont counties; but the lowest of winter show a considerable range between those of the coastal plain and of the middle and the Piedmont counties, the difference being 16° and 17°, respectively.

Climatological Data.—The following data is taken from U. S. Weather Bureau records for Newport News, Va., which is the nearest Weather Bureau Station. Newport News is 18 miles distant from Suffolk and only about 20 feet lower in elevation. The records extend over a period of 22 years.

SUFFOLK CLIMATOLOGICAL DATA
U. S. Weather Bureau

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Mean temperature	41.1	39.8	47.9	56.9	67.5	78.4	78.0	77.2	71.8	62.1	50.2	41.5	59.0
Lowest temperature	1	3	19	25	37	48	53	53	48	31	17	2	1
Highest temperature	76	76	91	94	95	100	102	105	98	91	84	76	105
Mean precipitation	3.07	3.51	4.01	3.09	3.63	4.87	6.15	5.54	2.76	2.91	2.22	3.67	45.36
Dryest year	3.95	2.62	4.88	2.97	3.11	3.79	2.76	2.82	8.01	0.87	2.44	2.89	34.61
Wettest year	2.25	9.21	4.59	6.36	1.00	5.22	3.35	9.85	3.95	0.39	6.04	6.08	58.24
Average snowfall	2.2	3.5	1.8	0.1	0	0	0	0	0	0	0.2	2.1	9.9
Average number of days with .01 inch or more precipitation	11	10	11	9	10	11	12	11	7	8	6	9	115
*Average wind, miles per hour	10.1	10.9	11.1	10.7	9.4	8.8	8.4	7.9	8.5	9.3	9.6	9.8	9.5
*Mean relative humidity (%)	76	74	74	72	75	77	79	81	79	78	75	75	76
*Sunshine percentage	51	57	58	60	61	60	63	61	62	63	61	50	59

Date of last killing frost in spring, average, March 28.
Date of last killing frost in spring, latest, April 30.
Date of first killing frost in autumn, average, November 6.
Date of first killing frost in autumn, earliest, October 3.
*Norfolk data.

SECONDARY FACTORS FOR INDUSTRIAL DEVELOPMENT

Local Government

Suffolk.—Suffolk enjoys the efficient administration of its governmental affairs by the city manager form of government. A city council consisting of five members is elected for a term of four years. The council appoints the city manager who is in turn responsible to that body. Other elective officials are the treasurer, clerk, commissioner of revenue, commonwealth attorney, and city sergeant. The city manager, the chief administrative officer, has the authority to appoint the heads of the service departments and supervises their work.

Nansemond County.—Nansemond County is divided into five magisterial districts: these are Sleepy Hole, Chuckatuck, Holy Neck, Whaleyville, and Cypress. Each district elects a supervisor for a term of four years. The five supervisors acting together constitute the legislative body of the county. Individually they administer the business of the district and collectively they manage county matters. One of the members of the group presides over the body and the county clerk acts as secretary. Their chief duties are to fix the rate of taxation, to supervise the construction of public buildings, roads, and bridges, and to audit the accounts of county officials.

Each district elects three magistrates and one overseer of the poor. In addition to these officers the county elects a commonwealth attorney, a treasurer, a sheriff, and a commissioner of revenue for a period of four years. The clerk of the court is elected for a period of eight years. There are two other important county officials who secure their office in a slightly different way. The division superintendent of schools is selected by the local school board from a list of eligibles approved by the State Board of Education. Nansemond County constitutes a school division and the educational matters of the county are administered by the divi-

sion superintendent. The county agricultural agent is appointed by the Agricultural Extension Division of Virginia Polytechnic Institute in cooperation with the United States Department of Agriculture.

Industrial Legislation.—A zoning ordinance has been in effect in Suffolk for some years. The effect of this legislation can be favorably noticed by any one acquainted with the development of cities. The ordinance has provided for three general classes or uses of property, viz., commercial, industrial, and residential. The business district is concentrated along portions of Washington, Main, and Saratoga streets. The industrial division is located in the southeastern part of the city principally upon Factory street. It is also situated along the Nansemond River in the northeastern section of the city.

The present zoning ordinance is being revised in which it is contemplated that the city shall be zoned according to more specialized and detailed uses.

A fire limit area has been established along Washington, Main, and Saratoga streets. The area covers from 20 to 25 city blocks. The chief regulation deals with the technical construction of buildings in this zone.

A building permit is required before construction or alteration can proceed. Information concerning proposed construction or alteration is submited to the chief of the fire department and permits are issued by him.

Taxes

Rate.—The city tax rate upon real estate and tangible personal property is $2.25 per $100 of assessed valuation. The assessed valuation of such property represents from 50 to 55 per cent. of its fair market value. The state does not impose a tax upon real estate and tangible personal property as these objects of taxation are segregated to the local community for tax purposes. The state takes corporation franchises, capital, and business taxes for its purposes. The table presents a list of the principal state taxes effective January 1, 1929.

Tax	Rate
1. Automobile license tax	70 cts. per hundredweight
2. Automobile gasoline tax	5 cts. per gallon
3. Banks—state and national	$1.10 per $100 capital stock, less real estate
4. Bank examination fees	$40 to $1,200, according to volume of resources
5. Business, general and professional	Annual and temporary license taxes based on volume of business
6. Capitation or poll tax	$1.50 per citizen
7. Court clerk's fees on collections	3% to 5%
8. Corporations:	
a. Charter fees	$10 upward, according to authorized capital stock
b. Registration fee	$5 to $25
c. Annual franchise, except public utilities	$10 and upwards, according to authorized capital stock
d. Car companies	$1.60 per $100 valuation property
e. Express companies	1 13-20% of gross receipts
f. Heat, light, water, and power	1 1-8% of gross income
g. Railway, steam and canals	1.5% of gross receipts
h. Railways, electric	$2.50 per $100 value rolling stock
i. Sleeping cars	$3.15 per mile of track
j. Steamboats	2% of gross receipts
k. Telephone and telegraph	1 1-16% of gross receipts
9. Game and inland fisheries	Hunting, fishing, and dog licenses
10. Income—a. Individual	1.5% to 3% on net income
b. Corporations	3% on net income
11. Industrial insurance	Commercial premium, plus 3.5% of premiums
12. Inheritance	1% to 15%, according to relationship and value of estate
13. Insurance companies:	
a. Life	2.25% of net premiums
b. Fire, marine, disability, etc.	1% to 2¾% net premium
14. Marriage license	$2 per license
15. Stocks and bonds	0.35–0.5% of market value

Assessments.—The following statement shows assessment, rate of taxation, and the tax over the last ten-year period:

	REAL ESTATE			PERSONAL PROPERTY		
Year	Assessment	Rate	Tax	Assessment	Rate	Tax
1919	$3,677,284.81	$1.87	$67,261.84	$518,151.00	$1.87	$9,525.74
1920	3,801,331.04	1.87	69,441.22	625,072.00	1.87	11,478.38
1921	6,296,724.53	1.75	107,335.97	692,605.00	1.75	11,870.38
1922	6,391,401.00	1.75	111,849.78	718,219.00	1.75	12,568.90
1923	6,591,042.85	1.75	115,343.62	774,965.00	1.75	13,562.83
1924	6,756,501.40	1.90	128,373.29	830,388.00	1.90	15,778.96
1925	7,200,447.97	1.90	136,808.84	863,894.00	1.90	16,414.90
1926	8,325,881.52	1.90	158,184.36	1,003,851.00	1.90	19,073.17
1927	8,528,088.00	2.15	183,353.81	1,019,044.00	2.15	22,452.18
1928	8,756,080.00	2.25	196,998.71	1,031,669.00	2.25	30,462.06

Receipts and Disbursements.—The receipts and disbursements of the city of Suffolk from 1924 to 1928 inclusive are:

Year	Receipts	Disbursements
1924-25	$230,055.08	$225,337.23
1925-26	243,370.94	243,977.36
1926-27	264,734.47	262,619.96
1927-28	261,111.10	260,058.46
1928-29	278,640.00	278,115.50
Totals	$1,277,911.59	$1,270,108.51

Licenses.—The council of the city of Suffolk passed an ordinance June 21, 1928, establishing license fees for 173 different types of business, trades, occupations, or employments within the city. A complete schedule of these licenses may be secured from the city manager's office. Only those which affect the largest number of business men in Suffolk are listed here.

Merchants, retail or wholesale:	
First $1,000 of purchases	$10.00
$1,000 to $2,000 of purchases	20.00
$2,000 to and including $50,000 of purchases	.25 per $100
$50,000 purchases upward	.10 per $100
Manufacturers of wheel vehicles	45.00
Manufacturers of mattresses	40.00
Manufacturers of ice cream	30.00
Manufacturers of bags	15.00
Manufacturers of candy	40.00
Manufacturers of veneers, box shooks, truck barrels, and boxes	60.00
Manufacturers or assemblers of peanut picking machines	100.00
Manufacturers of overalls	60.00
Manufacturers of screens	40.00
Manufacturers or assemblers of coffins	50.00
Manufacturers of syrups	40.00
Manufacturers of oils	60.00
Marble yards or works	15.00
Peanut cleaning	100.00
Planing mill	45.00
Printing	20.00
Storage	60.00

Bonded Debt.—The total bonded indebtedness of the city in 1928 is $852,500. There are ten issues of coupon

bonds representing a total indebtedness of $851,000. Three registered bonds were issued July 4, 1908, of $500 each to run for a period of 100 years at 4½ per cent. The limit on the bonded indebtedness is represented by 18 per cent. of the assessed valuation of real estate. The bonding limit for Suffolk is approximately $1,575,000 in 1928. The municipal indebtedness is well within this limit and in fact is only slightly over one-half of the allowance. A complete statement of the bonded debt of Suffolk as of June 30, 1928, is:

COUPON BONDS

Date of issue	Rate	Term	Maturity	Amount	
July 1, 1901	4%	30 years	July 31, 1931	$15,000.00	
July 1, 1902	4%	30 years	July 31, 1932	20,000.00	
July 2, 1906	4½%	30 years	July 1, 1936	100,000.00	
Aug. 1, 1912	5%	30 years	Aug. 1, 1942	40,000.00	
Jan. 1, 1916	4½%	30 years	Jan. 1, 1946	70,000.00	
May 1, 1922	5%	40 years	May 1, 1962	170,000.00	A
May 1, 1924	5%	25 years	May 1, 1949	168,000.00	B
Sept. 1, 1925	4½%	20 years	Sept. 1, 1945	130,000.00	C
Feb. 1, 1927	4½%	20 years	Feb. 1, 1947	38,000.00	D
June 1, 1928	4%	33 years	June 1, 1961	100,000.00	E
Total coupon bonds				$851,000.00	

REGISTERED BONDS

Date of issue	Rate	Term	Maturity	Amount
July 4, 1908	4½%	100 years	July 4, 2008	$500.00
July 4, 1908	4½%	100 years	July 4, 2008	500.00
July 4, 1908	4½%	100 years	July 4, 2008	500.00
	Total registered bonds			$1,500.00
	Total bonded debt			$852,500.00

A — Payable $5,000.00 annually.
B — Payable $8,000.00 annually.
C — Payable $5,000.00 annually.
D — Payable $2,000.00 annually.
E — Payable $3,000.00 annually to 1960 and $4,000.00 in 1961.

Real Estate Values

The average selling price of real estate in the business district ranges from $750 to $1,000 per front foot. Residence property sells for $40 to $50 per front foot without buildings. Three classes of residential property are noted in the city. Low priced residential property sells for $2,500 to $3,000; medium priced real estate for $4,000 to $6,000; and the higher priced property for $8,000 to $15,000. Exceptions to this price schedule are noted at both ends. There is some very cheap property in the city and on the other hand there

are a number of exceptionally valuable residences in and near the city. Real estate values are increasing and have done so over the past ten-year period. They have not increased spasmodically, but have shown a steady, stable growth. The industrial development of the city has been principally responsible for the increase in values.

Fire Protection

Organization.—The city is protected from fire by a combination paid and volunteer fire fighting company. The company consists of 15 paid men, including the chief, and 40 volunteers. There are a sufficient number of paid men on duty at all times to insure ready response to alarms. The volunteer strength of the company increases its fire fighting ability.

Equipment.—The company is equipped satisfactorily for a city the size of Suffolk. Its equipment consists of:

Type 19 American LaFrance Combination Hose and Pump. Capacity 1,200.
American LaFrance (Metropolitan) Triple Combination Pump, Booster and Hose Car. Capacity 1,000.
Type C Stutz Triple Combination Pump, Chemical and Hose Car. Capacity 750.
Knott Steam Engine—Tractor Drawn. Capacity 850.
Type 10 Combination Chemical and Hose Car—American LaFrance.
Type 17 75-foot American LaFrance Aerial Ladder Truck.
6,500 feet 2½ inch hose.

Hydrants.—There are 142 fire hydrants within the corporate limits. They are spaced about 400 feet apart. A pressure of 55 to 60 pounds is maintained at the hydrant. The pressure is secured by a stand-pipe erected to an elevation of 140 feet above the level of the city.

Fire Loss.—The fire loss record for the last five year period follows:

Year	Value of building and contents	Loss	New buildings
1923	$284,650.00	$11,844.00	$333,350.33
1924	739,975.00	43,039.00	752,679.00
1925	744,590.00	61,270.00	375,204.00
1926	1,379,800.00	258,950.00	458,085.00
1927	849,775.00	109,270.00	546,636.00

Insurance.—The city has second class insurance rates. The annual fire loss has not been great with the exception of the past two years. Steps are being taken to reduce loss from fire.

Police Protection

Organization.—The police force of Suffolk consists of one chief, one lieutenant, one sergeant, ten patrolmen, and one motor-cycle officer. The chief is on duty during the day and is assisted by the sergeant with four patrolmen. The lieutenant is in charge at night and is assisted by six patrolmen.

Street Traffic Control.—Traffic is controlled in Suffolk by the direction of the police officers and by street markings. There are about 15 "silent cops" to direct traffic at street intersections. There are no automatic traffic signals at the present. There seems to be need for automatic traffic control at two or three intersections.

Health Protection

Organization.—The Suffolk-Nansemond Health Department is a combined city and county unit, cooperating with the State Board of Health. The personnel consists of a director, one city nurse, one city sanitary inspector, one county nurse, one county sanitary inspector, a clerk, and one colored nurse. The department was organized October, 1922, and serves a population of 30,700. It is estimated that there are 6,888 homes served by the department. The total budget for 1928 was $13,720, of which $5,200 was contributed by the city, $4,000 by the county, and $4,520 by the state and other sources.

Sanitation.—One of the principal activities of the health department since its organization has been the sanitation of the colored schools of the county. This has been accomplished during the past year and the schools are now 100 per cent. sanitated. Since January 1, 1927, 814 homes have been sanitated. The small towns of the county are now 90 per cent. sanitated. Considerable work has been done in Suffolk to improve sanitation. More than a mile of new

sewer has been installed and 80 connections made during the year.

Disease Control.—The department has maintained toxin-antitoxin clinics for the control of diphtheria and has completed 1,576 treatments during the year 1927. On January 1, 1927, 75 per cent. of the white school children of the county had been immunized. Much work has been done among negro children since that time. The table shows the number of treatments of toxin-antitoxin given by years:

1924	1,080
1925	842
1926	189
1927	1,576

The number of typhoid fever cases has been reduced materially as shown below:

1925	62
1926	32
1927	8

During the past year only one case occurred in Suffolk and this was contracted in another city. The typhoid vaccination by years is:

1924	230
1925	1,487
1926	1,250
1927	1,302
Total	4,269

Scarlet fever has been mild and well controlled. Tuberculosis has been a serious problem in Suffolk and Nansemond County. A number of clinics have been held in order to determine the cases and put them under proper supervision.

Health Education.—The department has worked actively through the schools of the city and county. It is realized that proper instruction in hygiene and sanitation is the most effective means of controlling disease. The staff has lectured on numerous occasions. Several hundred newspaper articles have been published in regard to the health activities of the department. Moving picture shows have been run in the city theatres. A large number of bulletins, letters, and handbills have been distributed. The depart-

ment has taken advantage of every means at its disposal to educate the people in health matters.

Milk Supply.—The milk supply of Suffolk is produced by 12 dairies in Nansemond County, all operating under the Standard Milk Ordinance since 1925. Ten of these dairies produce grade A milk and two grade B. Regular bi-monthly bacterial examination is made of all milk. Milk is also tested for its butter content and has been advocated and used generously in correcting underweight children. An average of 450 gallons of milk per day is consumed in Suffolk, making an average per capita consumption of .36 of a pint for all people, white and colored.

Vital Statistics.—The 1926 population of Nansemond County was 13,700 white and 17,000 colored. The population of Suffolk was 6,100 white and 3,900 colored. The county had 7,600 white and 13,100 colored. There were 711 births of which 208 were white and 403 colored. There were 537 deaths of which 147 were white and 390 colored. There

	CITY		COUNTY		TOTAL
Mortality	White	Colored	White	Colored	
Births	161	284	67	199	711
Deaths	101	255	46	135	537
Typhoid	1	2	0	0	3
Malaria	0	0	0	0	0
Measles	0	0	1	0	1
Scarlet fever	0	0	0	0	0
Pertussis	1	2	0	2	5
Diphtheria and croup	0	2	1	1	4
Influenza	4	3	2	9	18
T. B.—pulmonary	5	31	1	14	51
T. B.—all others	0	4	0	2	6
Meningitis	0	1	0	0	1
Pneumonia	6	28	6	13	53
Diarrhoea, under 2 years	1	14	0	5	20
Diarrhoea, over 2 years	2	4	0	3	9
Puerpeal infection	1	1	1	2	5
Congenital debility malformation (early infancy)	1	0	1	0	2
Accidents:					
Suicide					7
Homicide					7
Injuries, not auto					18
Injuries, auto					16
Pellagra	0	2	0	0	2
Peritonitis	5	9	0	2	16
Nephritis	13	12	4	11	40
Heart	18	28	9	21	76
Apoplexy	11	15	13	9	48
Cerebral hemorrhage	0	0	0	0	0
Cancer	5	4	2	4	15
Diabetes	0	0	0	1	1
Encephalitis lethargic	0	2	0	0	2
Unclassified (premature birth, acute infections, post operative, etc.)	0	10	0	14	24
Stilborn	10	29	0	19	58

were only 174 more births than deaths for 1927. The colored race shows an increase of 93 and the white race an increase of 81. A comparison of the causes of death during 1926 and 1927 are shown in the table on the preceding page.

Housing Conditions

Houses.—The 1920 census gave Suffolk 2,066 homes. It is estimated that approximately 1,500 houses have been constructed in and around Suffolk during the last eight years. This would make a total of approximately 3,500 homes in the Suffolk area. There are several six to eight family apartments in the city. The condition of the homes of the white people is very good. There are a considerable number of very excellent homes in and near the city. The large population of colored people lowers the average condition for the entire community, but the condition of their homes is equal to the average of such residences.

Rents.—The best residences rent for $50 to $75 per month. Good apartments may be secured for $35 to $60 per month. There is a less desirable group of houses which may be rented for $25 to $35 per month. Houses among colored people rent for $12 to $20.

The best business property rents for $200 to $350 per month and the less desirable business property may be utilized for $100 to $200 per month.

Ownership.—A comparison of homes according to proprietorship is of interest. The large percentage of rented homes is due to the unusually large proportion of colored population.

	United States	Virginia	Suffolk
Rented	54.4%	48.9%	61.3%
Owned	45.6%	51.1%	38.7%

Banking Facilities

There are four banks and two building and loan associations situated in Suffolk. The oldest bank in the city is the Farmers' Bank of Nansemond. It was founded in 1869 and has been in continuous operation since that date. This bank has experienced remarkable growth, beginning in a small

way with a capitalization of only $20,000 and today it has a capitalization of $500,000, of which $480,000 was earned. It has a surplus of $500,000 and undivided profits of more than $500,000. The market value of the stock was fixed in 1919 at $7,500 per share. This is probably the highest price for which any bank stock has sold in the United States. The National Bank of Suffolk and the American Bank and Trust Company are strong and conservative banking institutions. The colored people of Suffolk have established a bank known as the Phoenix Bank of Nansemond, Inc. The two building and loan associations have been operating in Suffolk only a short time. The Suffolk Mutual Building and Loan Association, Inc., is the older of the two. The Commonwealth Building and Loan Association, Inc., is a branch office and has been in operation since May 1, 1928, which prevents giving a statement of its assets and liabilities.

The following tabulation is as of October 3, 1928:

Bank	Capital	Resources	Deposits	Surplus and profits
American Bank and Trust Company	$125,000.00	$1,500,558.13	$1,213,358.58	$81,070.81
National Bank of Suffolk	500,000.00	2,976,266.62	1,603,702.15	191,092.96
The Farmers Bank of Nansemond	500,000.00	5,142,878.26	3,487,460.29	1,076,979.99
*Phoenix Bank of Nansemond, Inc.	25,267.50	89,604.46	42,969.56	3,072.56
Suffolk Mutual Building and Loan Assn., Inc.	----------	108,922.83	----------	----------
Commonwealth Building and Loan Assn., Inc.	----------	----------	----------	----------
Total	$1,150,267.50	$9,818,230.30	$6,347,490.58	$1,352,216.32

*For colored people.

CIVIC REFINEMENTS

Educational Facilities

Public Schools.—The public school system of Suffolk is organized separately from that of the county. It is operated under its own administration and is responsible only to the State Board of Education. The public school system consists of three grammar schools, a junior-senior high school for white pupils, a grammar school and junior high school for colored pupils. These schools with number of rooms are:

Schools	Rooms
Suffolk Junior-Senior High School (gymnasium-auditorium with seating capacity of 1,000)	22
Thomas Jefferson School	16
George Mason Grammar School	8
John Randolph Grammar School	8
*Booker T. Washington Junior High School and annex	20

Private Schools.—There is a branch of the Norfolk Business College in Suffolk. It is operating on a small scale at the present. There are two private schools for colored children in the city.

Enrollment.—The enrollment of students in Suffolk schools as of September 1, 1928, was:

Junior-Senior High School	475
Elementary schools	840
Colored schools	756

The Suffolk schools have a well trained corps of teachers. There are the following number of teachers employed in the Suffolk schools:

Junior-Senior High School	25
Elementary schools	30
Colored schools	17

The Revenues and Valuation.—The total budget for the operation of the dual school system in Suffolk for 1928 was $97,119.18. The valuation of buildings and equipment is:

*For colored pupils.

Buildings, white pupils	$275,000.00
Buildings, colored pupils	75,000.00
Buildings total	$350,000.00
Furniture and equipment, white pupils	28,000.00
Furniture and equipment, colored pupils	9,500.00
Furniture and equipment total	$ 37,500.00
Total valuation	$387,500.00

The school system is operated on a 12-grade basis. There are special courses in domestic science and commerce offered in the high school. Two teachers devote their entire time to athletics and physical education. The Suffolk high school is on the accredited list of state high schools and is fully accredited by the Southern Association of Colleges and Secondary Schools. The school libraries have 3,500 volumes. An effort is being made to extend the library facilities as rapidly as possible.

Recreational Facilities

Playgrounds.—The four playgrounds are located on school property and largely used in connection with the physical education work of the schools. There is a five-acre baseball park owned by the school board where the major sports are conducted. The city of Suffolk has a program under consideration by which the playground and park facilities are to be extended.

Theatres.—There are two theatres, one with a seating capacity of 1,200 and the other approximately 900. These theatres furnish movie entertainment and an occasional vaudeville.

Country Club.—The Laurel Clift Country Club provides club facilities and a nine-hole golf course. It is located on the northern edge of the city, only a short distance from the business center.

Churches

There are six Protestant churches, a Catholic church, and a Jewish synagogue represented in Suffolk. The Salvation Army also has a post in the city. The Protestant

churches are: Baptist, Christian, Episcopal, two Methodist Episcopal South, and a Presbyterian. There are 20 churches for colored people. Seventy-three per cent. of whites, 65 per cent. of colored, and 70 per cent. of all are church members in Suffolk.

Hospitals

Suffolk has good hospital facilities. There are two such institutions located here, one a community hospital, the other owned by a private corporation. The two hospitals have an investment of $225,000. They have combined facilities of 75 beds, or 8.2 beds per 1,000 population. The Virginian Hospital has six medical men and five nurses on its staff. No nursing school is conducted at this institution. The Lake View Hospital has six full-time medical men, three nurse instructors, and twenty-five nurses in training. It has an A-1 rating by "The College of Surgeons."

Hotels

The three hotels of Suffolk provide ample hostelry facilities for the city. The Elliott Hotel has been recently constructed as a community project. The hotels with the number of rooms and rates are as follows:

Elliott Hotel, 85 rooms, 65 with bath; $2.00 to $3.50.
Nansemond Hotel, 50 rooms, 16 with bath; $1.50 to $2.50.
Busy Bee Hotel, 20 rooms, 2 with bath; $1.00 to $1.50.

Boarding Houses.—There are a number of very good boarding houses with reasonable charges. Good board may be secured at $30 per month and room for $15 per month.

Physical Plan and Streets

The city has developed on the gridiron plan. There are a number of arterial streets which cut across the strict parallel and perpendicular layout of the streets. In some of the newer sections of the city, boulevard effects are being created. This plan is adding to the attractiveness of the residential sections and is in line with best practise in city planning.

A very good proportion of Suffolk streets are improved. Considerable work, however, should be done especially in the

new residential district and in the factory zone. The street improvements showing the number of lineal feet of construction are:

Type of Streets	Lineal Feet
Concrete	31,670
Surface-treated gravel	24,735
Brick	8,050
Asphaltic concrete	3,500
Asphalt	2,950
Bitulithic	2,200
Total	73,105

There are 134,640 lineal feet of sidewalk.

Street Lighting

Present Lighting.—There are 356 street lights installed ranging from 100- to 600-candle power. The intensity of lighting varies in the several sections of the city according to the needs. Some lights are installed on poles, while others are swung overhead. There is also an ornamental white way in the principal business district. The following shows the number of lights of various sizes other than the ornamental lighting:

Number of Lights	Candle Power
247	100
25	250
7	400
22	600

White Way.—The ornamental or white way system is installed on wooden poles and extends over the principal business area on Washington and Main streets. The business district is very well lighted and makes a good appearance from an ornamental viewpoint. The white way system consists of:

Number of Lights	Candle Power
36	250
19	400

Proposed Improvements.—The improvements to the lighting system consist of installing higher-power lamps rather than extending the system. The city manager con-

templates making these improvements during the next fiscal year. The white way system will likely be entirely equipped with 400-candle-power lamps, and the other lighting brought up to a standard of 250-candle-power. This improvement will increase the lighting intensity, and greatly improve the appearance of Suffolk by night.

Municipal Sanitation

Sewerage.—The sewer system is municipally owned and serves the city in a very satisfactory manner. It covers a greater portion of the incorporated area and extensions are being made as rapidly as possible. There are 97,190 lineal feet of sanitary sewer and 20,000 lineal feet of storm sewers, making a total of 117,190 lineal feet of sewers in the system. Approximately 94 per cent. of the population is served by the system.

Sewage Disposal.—The sewage is emptied into the Nansemond River about one-half mile northeast of the city. It has not been treated, but to the present there has been no complaint regarding its disposal in this manner. As the city grows the need for an adequate sewage disposal plant will become more pressing.

Garbage Removal.—Garbage is collected three times weekly, and daily from hotels, restaurants, and the larger apartments. The city gives the appearance of being well kept and the streets are clean. The maintenance of numbers of waste containers on the sidewalks is a satisfactory means of keeping rubbish off the street and operates favorably in preserving sanitary conditions. A piggery is maintained and the garbage disposed of in this way. The sale of meat has become a considerable source of income to the city and according to the city manager this means of disposing of garbage is satisfactory. Twenty-five hundred to 4,000 pounds of pork is disposed of annually.

Municipal Transportation

Street Cars.—There are no street car lines operating at this time. One operated some years ago, but was abandoned after a time when it was found uneconomic to operate this mode of transportation in Suffolk. It is believed that

street car transportation is not as satisfactory as motor bus transportation in cities up to 25,000 population.

Jitney Service.—Jitney service is maintained and transportation may be secured to any point within the corporate limits at a charge of 25 cents. The jitneys are owned and operated by a number of private firms or individuals.

Newspapers

Local.—The "Suffolk News-Herald" is the only daily newspaper published in Suffolk. It has a circulation of 4,546 of which 2,300 is in the city of Suffolk. When it is estimated that there are about 2,500 homes within the corporate limits of Suffolk, a circulation of 2,300 bears witness to the interest of the people in their local newspaper. Its circulation has not developed outside to any great extent because of the large daily newspapers of nearby cities. The local paper enjoys the service of the Associated Press, has an excellent local newspaper staff, and prints considerable syndicate matter.

The Peanut Journal Publishing Company prints a monthly paper in the interest of the peanut industry. This publication has a good circulation among the peanut growers and manufacturers.

Other Papers.—"The Virginian Pilot" and "The Norfolk Ledger-Dispatch," a morning and evening paper, respectively, have a considerable circulation in the Suffolk territory. "The Richmond News-Leader" and "The Richmond Times-Dispatch" are also sold in this region.

GENERAL BUSINESS DATA

Postal Receipts

The postal receipts have shown a steady increase during the past 28 years. There is no better indication of the growth of a community than that reflected by the increase of postal receipts. The Suffolk post office became a first class institution in 1918 with receipts in excess of $40,000 per annum.

Postal receipts from 1900 to 1920 by five year periods and by annual periods since 1920 are as follows:

1900	$9,311.35	
1905	14,591.93	
1910	23,926.85	
1915	30,851.07	
1920	52,482.74	
1921	57,980.48	
1922	57,895.83	
1923	56,795.08	
1924	59,368.65	
1925	62,346.78	
1926	64,098.01	
1927	66,882.97	
1928	56,502.55	11 months

RETAIL BUSINESS

Type of business	Number of concerns	Number of employees	Capital investment	Annual payroll	Volume of business
Antique shop	1	1	$ 2,700		$ 5,000
Automobiles	8	74	441,500	$117,408	1,516,356
Automobile service stations	13	35	41,200	35,950	241,400
Books and stationery	1	2	10,000	1,800	5,200
Department stores	9	76	306,000	68,194	993,000
Drug stores	5	27	55,500	29,019	221,000
Electrical companies	2	16	39,000	26,280	145,000
Feed and seeds	2	3	4,554		29,323
Flowers and gift shop	2	3	3,800	3,820	13,500
Furniture	6	28	139,000	37,360	246,000
General merchandise	4	37	63,000	27,880	248,000
General ready-to-wear	5	16	85,500	18,812	151,750
Hardware and building supplies	5	25	163,251	46,755	254,961
Jewelry	4	10	64,000	10,197	85,000
Ladies' ready-to-wear	4	11	56,000	10,660	155,000
Meats	7	13	10,100	16,640	100,000
Men's clothing	4	13	104,000	21,580	255,000
Millinery	6	10	16,600	10,768	49,500
Musical instruments	2	10	40,000	12,584	55,000
Mules and horses	1	1	4,000	910	50,000
Office supplies	1	2	5,000		18,000
Plumbing	1	12	7,000	15,600	50,000
Retail groceries	27	67	51,600	69,146	337,000
Shoe stores	3	8	40,000	7,280	136,000
Tailoring, cleaning and pressing	1	8	9,000	8,476	27,000
Total	124	508	$1,762,305	$597,119	$5,387,990

WHOLESALE BUSINESS

Type of business	Number of concerns	Number of employees	Capital investment	Annual payroll	Volume of business
Brokerage	1	1	$ 5,000	$ 1,500	$517,000
Confections and tobacco	2	14	60,000	18,560	365,000
Drugs	1	4	10,000	2,600	30,000
Fruits and produce	3	25	34,000	11,700	455,000
General merchandise	2	7	50,500	5,408	417,000
Groceries	3	19	110,000	37,300	796,000
Lumber	1	51	12,000	5,464	150,000
Meats	1	11	25,000	15,000	500,000
Paper and twine	1	2	3,000	1,560	20,000
Total	15	134	$309,500	$99,092	$3,250,000

WHOLESALE AND RETAIL BUSINESS

Type of business	Number of concerns	Number of employees	Capital investment	Annual payroll	Volume of business
Building supplies and feed	2	24	$ 70,000	$ 29,760	$500,000
Candies	1	3	2,000	1,820	15,600
General drugs	2	11	45,000	8,580	115,000
Hardware	1	8	65,000	10,400	140,000
Horses and mules	1	4	50,000	5,556	65,000
Seed, feed, cotton, and flour	3	18	120,900	27,100	384,600
Total	10	68	$352,000	$ 83,216	$1,220,200

INDUSTRIAL STATISTICS FOR VIRGINIA

Industry	No. of estimated establishments	Wage earners (average 76)	Wages	Cost of materials	Value of products
Agricultural implements	9	146	$161,665	$234,368	$642,600
Awnings, tents, sails, and canvas covers	14	60	71,578	216,984	415,843
Bags, other than paper, not made in textile mills	10	267	164,479	3,121,626	3,533,296
Beverages	90	429	473,026	1,766,974	4,133,746
Bookbinding and blank-book making	5	50	50,124	25,464	105,059
Boxes, paper and other, not elsewhere classified	12	608	448,963	1,320,366	2,261,805
Boxes, wooden, except cigar boxes	17	1,542	1,121,721	4,160,355	6,243,225
Bread and other bakery products	83	1,230	1,439,884	5,201,469	9,243,851
Butter, cheese, and condensed and evaporated milk	26	107	129,116	2,004,013	2,366,575
Canning and preserving: fish, crab, shrimps, oysters, and clams	11	129	52,086	200,698	319,963
Canning and preserving: fruits and vegetables; pickles, jellies, preserves, and sauces	81	812	286,166	2,115,166	2,719,744
Car and general construction and repairs, electric railroad repair shops	10	246	286,205	255,630	601,325
Car and general construction and repairs, steam railroad repair shops	37	13,291	17,596,303	17,185,994	37,191,287
Carriages, wagons, sleighs, and sleds	8	264	226,672	542,618	1,213,724
Caskets, coffins, burial cases and morticians' goods	6	53	60,030	174,612	345,387
Cast-iron pipe	3	1,100	1,211,596	3,224,981	5,785,585
Chemicals, not elsewhere classified	15	1,288	1,691,342	3,791,307	8,152,261
Clay products (other than pottery) and non-clay refractories	45	1,482	1,316,943	946,616	3,879,640
Clothing, men's, not elsewhere classified	23	1,707	1,085,406	4,016,710	6,533,695
Clothing, women's, not elsewhere classified	5	194	113,369	346,243	517,594
Coke, not including gas-house coke	10	498	300,832	1,284,306	1,922,360
Concrete products	15	261	237,925	327,568	965,900
Confectionery	19	1,349	719,045	5,953,432	9,322,381
Cooperage	37	1,061	955,306	1,609,955	2,916,785
Copper, tin, and sheet-iron work, including galvanized iron work, not elsewhere classified	8	96	105,373	620,985	950,238
Cotton goods	10	8,035	6,600,951	17,601,360	30,295,320
Electrical machinery, apparatus, and supplies	5	73	58,879	127,911	238,249
Engraving, steel and copper-plate and plate printing	3	19	17,691	8,362	44,502
Excelsior	14	174	126,110	213,364	453,558
Fertilizers	45	2,365	1,871,180	12,343,162	19,276,254
Flavoring extracts and flavoring sirups	6	98	87,348	778,811	1,598,969
Flour, feed, and other grain mill products	245	656	605,352	16,793,580	19,871,634
Food preparations, not elsewhere classified	15	144	116,903	1,750,702	2,223,353
Foundry and machine-shop products, not elsewhere classified	57	1,042	1,236,340	1,819,208	4,427,421

INDUSTRIAL STATISTICS FOR VIRGINIA — Continued

Industry	No. of estimated establishments	Wage earners (average 76)	Wages	Cost of materials	Value of products
Furniture	38	4,376	$3,585,937	$8,850,217	$18,792,297
Gas, manufactured, illuminating and heating	16	438	547,209	1,510,104	4,673,468
Glass	3	176	161,236	169,146	402,365
Grease and tallow, not including lubricating greases	4	199	208,464	869,923	1,250,947
Hardware, not elsewhere classified	4	113	87,785	111,106	308,506
Ice cream	40	382	412,592	1,468,683	3,080,788
Ice, manufactured	104	645	727,526	1,022,257	3,855,060
Iron and steel: blast furnaces	4	429	336,027	2,902,336	3,722,680
Knit goods	16	2,732	1,584,232	4,859,173	7,637,357
Leather: tanned, curried, and finished	10	1,030	930,601	6,880,128	8,837,806
Lime	28	773	663,037	1,226,270	2,559,679
Lumber and timber products, not elsewhere classified	493	11,621	8,447,487	9,399,000	23,895,561
Lumber: planing-mill products not made in planing mills connected with sawmills	113	2,520	2,618,807	8,225,273	14,189,869
Marble, slate, and stone work	38	1,416	1,243,676	922,184	2,767,447
Mattresses and bed springs, not elsewhere classified	17	241	211,278	936,868	1,694,720
Millinery and lace goods, not classified elsewhere	5	136	94,827	129,098	303,808
Minerals and earths ground or otherwise treated	5	107	119,935	176,901	472,838
Motor-vehicle bodies and motor-vehicle parts	7	193	203,302	541,398	968,812
Paints and varnishes	8	58	67,745	490,961	895,039
Paper and wood pulp	12	2,887	2,811,548	12,878,611	20,083,944
Patent medicines and compounds	14	88	82,420	604,652	1,759,445
Paving materials, other than brick	12	482	461,256	412,138	1,509,944
Peanuts: grading, roasting, cleaning, and shelling	23	790	363,973	8,096,516	9,098,454
Perfumery, cosmetics, and toilet preparations	4	18	15,468	67,507	237,839
Photo-engraving, not done in printing establishm'ts	5	46	99,801	31,951	220,602
Printing and publishing, book and job	113	1,645	1,951,630	2,654,629	7,351,900
Printing and publishing, newspaper and periodica	121	879	1,470,956	2,346,881	8,829,545
Roofing materials, not including wood, slate, burnt tile, asbestos, or metal other than metal shingles and ceilings	3	19	17,997	43,187	112,637
Ship and boat building, steel and wooden, including repair work	24	6,042	7,123,348	7,672,908	18,586,350
Shirts	6	242	87,008	177,853	340,243
Signs and advertising novelties	5	132	100,916	139,143	902,976
Silk manufactures	12	1,222	930,372	2,845,322	4,984,258
Slaughtering and meat packing wholesale	23	560	548,814	7,669,529	8,908,604
Stoves (other than gas, oil, or electric) and warm-air furnaces	4	263	281,243	202,027	929,456

INDUSTRIAL STATISTICS FOR VIRGINIA — Continued

Industry	No. of estimated establishments	Wage earners (average 76)	Wages	Cost of materials	Value of products
Structural and ornamental iron work, not made in rolling mills	9	938	$1,325,926	$3,307,545	$5,816,121
Tanning materials, natural dyestuffs, mordants and assistants, and sizes	7	249	267,832	1,250,780	1,926,187
Tin cans and other tinware, not elsewhere classified	4	509	427,943	2,679,349	4,156,830
Tobacco: chewing and smoking, and snuff	10	1,803	1,245,982	8,539,302	17,683,463
Tobacco: cigars and cigarettes	18	5,218	3,431,324	28,350,185	72,505,293
Trunks, suitcases, and bags	10	1,207	1,227,242	3,310,394	6,094,615
Vinegar and cider	5	241	163,831	988,541	1,421,740
Wood preserving	5	335	330,776	2,423,527	2,959,428
Wood, turned and carved	10	143	105,571	190,000	402,630
Woolen goods	8	719	719,253	1,868,055	3,848,929
All other industries	134	16,997	17,016,557	53,166,760	97,762,756
All industries					
1925	2,553	112,135	105,886,599	314,711,268	589,510,865
1923	2,731	111,474	104,593,239	302,055,090	544,722,769